NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

REDUCING THE TIME AND EXPENDITURE: FROM PROTOTYPE TO PRODUCTION IN INFORMATION TECHNOLOGY APPLICATION DEVELOPMENT

by

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September 2004

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REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*

2. REPORT DATE
September 2004

3. REPORT TYPE AND DATES COVERED
Master's Thesis

4. TITLE AND SUBTITLE: Reducing the Time and Expenditure: From Prototype to Production in Information Technology Application Development

5. FUNDING NUMBERS

6. AUTHOR(S) Aaron D. Abdullah, Robert A. Campbell, Samuel L. Ruble

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Commander, Navy Region Northwest
Silverdale, Washington

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT (maximum 200 words)

The Department of Defense (DoD) environment is continuously changing to keep up with highly sophisticated technology that is increasingly creating a global environment and to combat recent international terrorism threats. DoD technology must continue to evolve with modern demands in order to remain effective in today's dynamic and unpredictable environment. Therefore, new demands in software development are constantly increasing to fulfill the needs of rapidly changing business processes. The DoD is slowly becoming more automated and innovative to meet these new demands; however, current software development methodologies provide only limited support and their use often results in increased costs, changes in project scope/duration, and a reduction in system reliability and interoperability. Significant budget constraints and decreasing software development lead times present the need for higher levels of system reliability and interoperability. Our goal is to make DoD software development more efficient by decreasing the necessary time and expense for development by adopting an approach that will go straight from prototype to production.

14. SUBJECT TERMS Information Technology Management, Prototyping, CNRNW, Bachelor Housing, Prototype to Production, Application Development

15. NUMBER OF PAGES 319

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	**18. SECURITY CLASSIFICATION OF THIS PAGE**	**19. SECURITY CLASSIFICATION OF ABSTRACT**	**20. LIMITATION OF ABSTRACT**
Unclassified	Unclassified	Unclassified	UL

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY MANAGEMENT

from the

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ABSTRACT

The Department of Defense (DoD) environment is continuously changing to keep up with highly sophisticated technology that is increasingly creating a global environment and to combat recent international terrorism threats. DoD technology must continue to evolve with modern demands in order to remain effective in today's dynamic and unpredictable environment. Therefore, new demands in software development are constantly increasing to fulfill the needs of rapidly changing business processes. The DoD is slowly becoming more automated and innovative to meet these new demands; however, current software development methodologies provide only limited support and their use often results in increased costs, changes in project scope/duration, and a reduction in system reliability and interoperability. Significant budget constraints and decreasing software development lead times present the need for higher levels of system reliability and interoperability. Our goal is to make DoD software development more efficient by decreasing the necessary time and expense for development by adopting an approach that will go straight from prototype to production.

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ACKNOWLEDGMENTS

The authors would like to express their sincere gratitude to Thomas J. Housel, Ph.D. and Professor Richard Bergin for their assistance, guidance and professional wisdom throughout the process of developing this thesis. Special thanks to our sponsor, RDML Leendert R. Hering, USN, Commander Navy Region Northwest, and his staff: LCDR Robert Skjonsby, USN, Mrs. Jonnie Lambdin and Mrs. Linda Cruz, for their generous financial support, professionalism, patience, courtesy and assistance. Additional thanks goes to our professional advisors, Douglas E. Shook, Ph.D. and Robert A. Josefek, Ph.D. for their technical assistance and expertise.

I would like to offer a personal thanks to my wife Angela, and my children Alexis and Aaron for putting up with my academic moods over the last few years. Your support is appreciated! Thanks to my thesis partners Sam and Rob for a year's worth of hard work! Thanks to all my classmates…I wish you all the best in your future endeavors. Finally, special thanks to all the professionals on the NPS faculty and staff (especially those dedicated individuals in the Knox Library) for your support and assistance.

Aaron

I would to thank my thesis partners who, without the dedication of this team, this thesis would have not been possible. I also want to thank my wife and best friend who has given her steadfast support as a Marine wife for the last 15 years.

Sam

Thank you to all the friends who have helped me during the last two years. Moe and Steve, thank you for your insight. I would also like to extend my personal thanks to Aaron Abdullah and Sam Ruble for their guidance during the last year, to Jennifer West for her constant professionalism, and lastly to my beautiful wife Kimberly and to my daughter Allison. Kim, thank you for patience and understanding throughout my Naval career, without you I could not succeed.

Robert

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I. RESEARCH CONTEXT

A. INTRODUCTION

The purpose of this thesis is to determine whether prominent system application development prototyping approaches can be transformed into more efficient "working-prototypes" that can go straight into production. The Department of Defense (DoD) environment is continuously changing to keep up with highly sophisticated technology that is increasingly creating a global environment and to combat recent international terrorism threats. DoD technology must continue to evolve with modern demands in order to remain effective in today's dynamic and unpredictable environment. Therefore, new demands in software development are constantly increasing to fulfill the needs of rapidly changing business processes. The DoD is slowly becoming more automated and innovative to meet these new demands; however, current software development methodologies provide only limited support and their use often results in increased costs, changes in project scope/duration, and a reduction in system reliability and interoperability. Significant budget constraints and decreasing software development lead times present the need for higher levels of system reliability and interoperability. Our goal is to make DoD software development more efficient by decreasing the necessary time and expense for development by adopting an approach that will go straight from prototype to production.

Because of new challenges continuously faced by the DoD, software development methodology must be more efficient and more reliable. Among the current methods available, waterfall, iterative and spiral are the most popular with business as well as with DoD applications. Unfortunately, each of these methodologies was designed and used under assumptions that are no longer relevant to today's DoD. They all contain limitations that are restricting the advancement of future DoD software development. For example, the waterfall method presents problems adapting to change and does not scale up well to large projects which are crucial elements in today's competitive, dynamic environment. The iterative method can lead to "scope creep," increasing customer demands due to user feedback following each phase. This, of course, slows down development. Furthermore, while the spiral method is especially suited for prototyping, it lacks the necessary elements required to go straight from prototyping to production.

We propose a software development methodology that efficiently and effectively supports the transition from prototype to production level system. Utilizing the organization's existing data architecture, applications and infrastructure and superimposing new, rapid application development techniques generates significant time savings.

The key benefits our proposed development methodology strives to achieve are:

- Decreased project costs
- Decreased project duration through reduction in developmental lead-time (from following a highly structured and controlled process)
- Increased ROI through re-use and the advantages gained from the timely incorporation of existing and emerging Information Technology

These drive the current initiatives for our case and are discussed below.

The largest gains in the area of Information Technology (IT) have been the technological transformation and advances of computing and communications. In order to remain a viable force and combat the increasing global challenges of tomorrow, the Navy must enact transformational change that keeps pace with these advances. IT has accelerated the pace of change; therefore the Navy must continue to push hard to benefit from these changes. The Navy's impetus for change closely mirrors the benefits of our key drivers and is outlined as follows:

1. Transform the way the Navy conducts its business affairs in day-to-day operations in order to achieve the greatest Return on Investment, (ROI) of the taxpayer dollar.
2. The need for organizational transformation, as it applies to the consolidation and re-allocation of IT resources, and restructuring in order to meet operational requirements.
3. The need to effectively and efficiently harness the benefits of Information Technology.

The key factors, with reference to the initiatives of our proof-of-concept study, are discussed in the following paragraph.

There is growing emphasis on the return of investments (ROI), Navy wide, of current operations in order to stretch the defense dollar. An effort to become more business like, supporting recapitalization, is currently underway. In the words of the Chief of Naval Operations:

> It is about adding a business dimension to our culture where productivity, cost effectiveness and return on investment become key elements of decision-making processes at all levels of our enterprise. Recapitalization and other navy priorities must take precedence in decisions regarding the outputs and associated costs of navy's business activities.

In directly supporting the ideas of recapitalization, it is important that we point out that thesis concept was sponsored by a real proponent for embracing the Navy's future direction. Rear Admiral (RDML) Leendert R. Hering, USN, Commander, Navy Region Northwest, who in keeping with the true spirit of the Secretary of Defense's Transformation Guidance and the directives of the Chief of Naval Operations, is representative of the new type of naval leadership that is required to achieve the goals of the ongoing initiatives.

In the area of organizational transformation, the Navy is undergoing major changes in order to meet the strategic challenges of the 21st Century. Sea Power 21 outlines the Navy's roadmap for transformational change with Sea Enterprise[1] the "enabler" for this effort. Although the program requires substantial capital investment, additional budget increases are not expected to be available. This implies the Navy needs to reduce current expenditures on non mission critical areas to fund re-capitalization efforts and modernization of the fleet. Therefore an overarching, organization-wide drive

[1] "The objective of sea enterprise is to deliver the necessary resources to finance the sea power 21 vision." Our leaders have established a sense of urgency for transformation. Older equipment must be replaced with more capable sensors, networks, weapons and platforms if the navy is to sustain its ability to deter and decisively defeat enemies well into the future. As the resource enabler for sea power 21, sea enterprise is key to this effort. Sea enterprise reduces overhead, streamlines processes, substitutes technology for manpower, and creates incentives for positive change. (Sea Power 21 *Proceedings*, October 2002, Admiral Vern Clark, U.S. Navy)

to reduce infrastructure (overhead), improve productivity, and streamline processes through technological advancements is taking place.

The establishment of NMCI (Navy-Marine Corps Intranet) and the high level of enterprise-wide IT literacy enable the organization to effectively harness the benefits of IT. By utilizing current technology the Bachelor Housing Operation seeks to develop a more efficient and cost-effective means of managing transactions for permanent-party and transient guests while concurrently providing first-class lodging at a high level of customer satisfaction (this will be achieved through personalization of services). These technological tools have been available for some time, but fiscal restraints and poor implementation of resources has, in most cases, provided an "IT fix" where the need for an integrated "IT solution" was required. These objectives are the key goals of the current initiative (our "proof-of-concept" case study) to enhance the management and daily operations of Navy Bachelor Housing operations in the Navy Region Northwest.

B. PURPOSE

As previously mentioned, the purpose of this thesis is to determine whether prominent system application development prototyping approaches can be transformed into more efficient "working-prototypes" that can go straight into production. Some of the earliest known prototypes date back to models of the pyramids, and although these are not the same types of prototypes we refer to when discussing the development of modern software prototypes, the basic concepts remains the same. Today, when prototypes are built, depending on scope, companies spend millions of dollars on research and development costs in the creation of prototypes, only to discard the prototype later as the production system is built. Could this costly approach be changed if developers could go straight from prototype to production; thereby immediately recapitalizing investments of time and capital that may have been lost in the development of a throw-away prototype? How much productivity do organizations lose during the time lag between prototype development and production level systems implementation, and how much benefit could those same organizations have realized had that same productivity been applied much sooner?

Gathering requirements plays a large role in prototyping. Most of the time in systems application development, requirements are not entirely known prior to the development efforts of system prototypes. In most cases this tends to slow the overall systems development cycle (as a direct result of the lengthened time between prototype and production). However, in systems where the requirements are more fully known, a system could be produced with the "working prototype" put into immediate production.

C. BACKGROUND

Our proof-of-concept case is the result of an initiative that Rear Admiral (RDML) Leendert Hering, USN; Commander, Navy Region Northwest. The intent was to conduct a feasibility study on producing a system that would help to optimize the operations of Naval Bachelor Housing. In accordance with the Chief of Naval Operation (CNO) Fleet Readiness Plan, the business initiatives of Sea Enterprise, and the future for Navy Family and Bachelor Housing operations, RDML Hering solicited the assistance of the Naval Postgraduate School (NPS) in creating an initiative to provide an effective and efficient e-business solution for Bachelor Housing. This enterprise-wide e-business solution must offer: a means for waste eradication (stemming primarily from the issuance of Certificates of Non-Availability (CNA)), a complete integration of current information technology, a standardization of services, and offer a means to increase in the organization's Return on Investment (ROI). With these operational goals as guidelines, the (NPS) team set forth to provide the Navy Region Northwest with a concept for a kiosk-based, e-business solution; a solution that required we explore the depths of application development and served as the proof-of-concept case for our thesis research.

Our area of research is centered on the exploration and analysis of Prototyping and Rapid Application Development (RAD) methodologies as they specifically apply to the creation and development of prototypes in an attempt to generate production level systems. The focus of our analysis lies not only in identifying those characteristics and attributes that allow a prototype to successfully evolve into a fully-functional production-level system; we, more importantly, want to identify methods that effectively shorten the elapsed time between the two.

Developers spend a tremendous amount of time and money gathering requirements to ensure the prototype reflects the functionality desired and then, in most cases, the prototype is disposed of or has no further utility in the continued developmental process. We feel the basic premise behind prototyping is to provide a means for the development, justification, and verification of requirements. Once the requirements phase is complete two alternatives emerge: the decision to continue or discontinue the use of the prototype in further product development. In order to deter prototype abandonment we must pursue the following goals:

1. Discover how we can turn a prototype into a successful production-level system.
2. Take the measures needed, in the developmental process, to ensure the prototype is not abandoned.

D. RESEARCH QUESTIONS

1. What are the most promising systems development methodologies that will enable us to use a prototype for production-level systems development?
2. How does our proposed approach to current systems development methodologies enable us to effectively transition prototypes into production level systems?

E. SCOPE

1. Literature Review

Our literature review will focus on the "application development domain." Our intention is to find both the strengths and weaknesses in the processes of current systems development methodologies in order to discover specific attributes that ultimately lead to either the resultant successes or failures in the development of system applications. In order to optimize the utility of our findings, as they apply to our "proof-of-concept" case, we intend to exploit what we believe to be the "gaps" in the current development methodologies (we shall then compare/contrast our solution to the findings of our research) and illustrate our process methodology and experiences in the development of our proposed system.

2. Organization

The thesis research will be organized in the following manner:

- Chapter I consists of an outline and overview of the thesis research including background, scope, methodology and organization

- Chapter II consists of a description and overview the literature in the areas of research that includes: (A- Journals, etc…) and extends across the fields of: (e.g. computer science, Information Technology, software Engineering)
- Chapter III details a description and discussion of our "proof-of-concept" case analysis.
- Chapter IV consists of recommendations (both general and specific to our case study)
- Chapter V includes a synopsis on the limitations of our study and the potential areas for future research

3. Methodology

The methodology for this thesis research includes conducting a comprehensive literature search and review of books, journal articles, and Internet-based materials. We will be using a single sample, the Pacific Northwest Region Bachelor Housing initiative, as the framework for our "proof-of-concept" study in answering our research questions. Our methodology will encompass a comprehensive description of what we went through with reference to the strengths and weaknesses that we have identified in our research and case study analysis.

4. Discussion

Our case study analysis will focus on answering the research questions and attempt to identify and explain our findings with respect to the following:

1. What were the implications of "time" and "funding" on the developmental process and how do they differ?
2. What were our limitations? What necessary elements or application developmental tools were missing, and what factors could we not control?

F. SUMMARY

As corporations and government organizations continue to downsize and outsource in an attempt to restructure cost, they must rethink the way they exploit prototypes in order to save their organizations both time and money. The Department of the Navy can certainly benefit by utilizing findings (from other shared innovations that have been mutually beneficial between the civil and government sectors) as it continues on a path of transformation intended to radically improve its enterprise-wide business processes. This thesis will look at established practices within government and industry to determine whether our prototyping method can help to improve the “bottom line.” Our thesis will include a section that offers findings and recommendations for future application development. We will provide a generalized view of what we learned in the form of a methodology and how it can be applied in future application development initiatives.

II. PROTOTYPING, RAPID APPLICATION DEVELOPMENT AND REQUIREMENTS ANALYSIS

A. PROTOTYPING MODELS

In her book *Software Engineering: Theory and Practice*, Shari Lawrence Pfleeger describes a prototype as "a partially developed product that enables customers and developers to examine some aspect of the proposed system and decide if it is suitable or appropriate for the finished product"[2] Elaine Hall defines prototyping as "a technique for reducing risk by buying information. Knowledge is gained through creating a physical model without adding the effective means for communicating with the user community or the implementation details."[3] Prototyping is a necessary part of product development. It confirms the proper performance as well as ensures the desired standards and requirements are met for the final product. It can also aid developers in evaluating which model approach is most advantageous for a specific task and identifying the main requirements of a system. Although prototyping has proven to be useful for confirmation, Pfleeger states this can actually transpire "during other parts of the development process"[4] as well.

Prototyping, as it is known today, is nothing new and certainly was not limited to the last century. Some of the earliest known prototypes date back to models of the pyramids. Of course, these are not the same prototypes styles we mean when we discuss modern software prototypes, but the concept is the same. While prototyping remains a very useful tool in modern productivity, this method of product development is extremely costly and time consuming. Today, when prototypes are built, depending on the scope of what is being developed; companies can spend millions of dollars on developing a prototype that is only discarded later when the production model is built. The cost is then chalked up to obligatory research and development expense. How much money do

[2] Pfleeger, Shari Lawrence, *Software Engineering: Theory and Practice,* Upper Saddle River: Prentice Hall, 2001.

[3] Hall, Elaine, M. *Managing Risk: Methods for Software System Development*, Boston: Addison-Wesley, 1998.

[4] Pfleeger, Shari Lawrence, *Software Engineering: Theory and Practice,* Upper Saddle River: Prentice Hall, 2001.

companies lose during that time gap, when they could have been making money had the prototype gone straight into production? Can this costly approach to modern thought be changed if organizations could go straight from prototype to production; saving money that is now lost in a throw-away prototype, not to mention the sometimes large time gap between prototype and production? Yes.

Requirements play a large role in this framework. Many times in system development, the requirements are not fully known. This slows the development process as well as lengthens the time between prototype and production. However, in systems where the requirements are fully known, a system can be produced with the working prototype put into immediate production. Requirements will be discussed in much greater detail in another chapter.

We mostly visualize prototyping as constructing a scaled-down version of the system under development, which usually has limited functionality. Sometimes this is done to help stakeholders identify requirements and to aid the developers in determining if they are on the right track with the design or taking the correct approach. Generally, the current thinking on prototype development follows this model. A prototype is built, and then it is appraised for its functionality. It usually receives feedback from the stakeholders, who evaluate the functionality and determine from there any improvements that can be made. Subsequently, they either incorporate these changes into a second prototype or incorporate the knowledge gained to the actual production model. In order to get to this point, developers use one or more of the process models listed below.

1. Waterfall Model

As the name depicts, the stages in this model flow from one to the other. This model is one of the earliest and simplest models for structured development. Each stage in this method should be accomplished before proceeding to the next, which helps the developer plan his strategy regarding what needs to be done. This model is attributed to providing the theoretical basis for other Process Models, due to its closely resembling a "generic" model for software development.

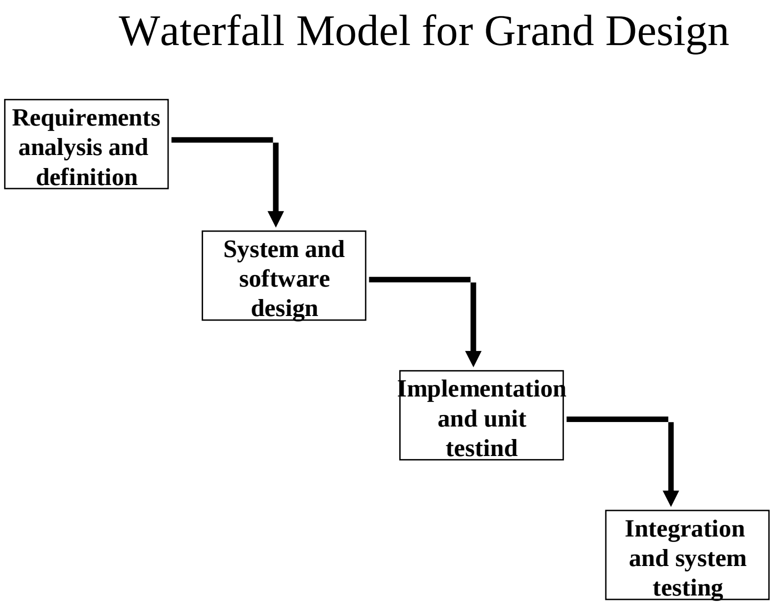

Waterfall Model for Grand Design
Requirements analysis and definition
System and software design
Implementation and unit testind
Integration and system testing

Figure 1. Waterfall Model for Grand Design[5]

The waterfall model has three basic assumptions:

- The problem domain is well known by both client and development team;
- The problem domain is relatively stable over the development period;
- The client can wait for the entire solution to be delivered.

However, the waterfall method has been criticized because of its lack of flexibility and its inability to properly address the creation process that exists with software development. The main problems with the waterfall model are:

- It is difficult to define all requirements at the beginning of a project;
- This model has problems adapting to change;
- A working version of the system is not seen until late in the project's life;
- It does not scale up well to large projects;
- Real projects are rarely sequential.

[5] Osmundson, J. Lecture notes. Naval Postgraduate School, Sep. 2003

Due to these weaknesses, the application of the waterfall model should be limited to situations where the requirements and their implementation are well understood. For example, if an organization has experience in developing accounting systems, then building a new accounting system based on the existing designs could be managed with the waterfall model. Ironically, in spite of these weaknesses, the Waterfall Model is still widely used today.

As research students embarking on a new project, the waterfall method was one of the first methods we studied. Therefore, this was the first approach we considered in tackling our project. While this method is a good approach, particularly for those just starting out in project development, it quickly became apparent this was not the appropriate method to minimize prototype to production time. Initially, the waterfall was acceptable for our purposes during the requirements analysis phase, but we quickly learned it was a slow process. The assumption that the client can wait for the entire solution to be delivered was the main problem for us since the client wanted the project sooner. Of course, if a company is in a hurry during project development, as most businesses are, this is not the correct model. However, we found that if the developer has a flexible time schedule that allows him to take his time and be meticulous with each step, this method would be suitable.

2. Incremental and Evolutionary Methods

The Incremental Model (also known as the iterative model) performs the waterfall in overlapping sections, thereby attempting to produce usable functionality earlier in the project life cycle. This allows the development team to demonstrate results earlier on in the process and obtain valuable feedback from system users. As some modules are completed before others, well-defined interfaces are required. In addition, there can be a tendency to push difficult problems to the future to demonstrate early success to management. The Incremental Model can be used when it is too risky to develop the whole system at once.

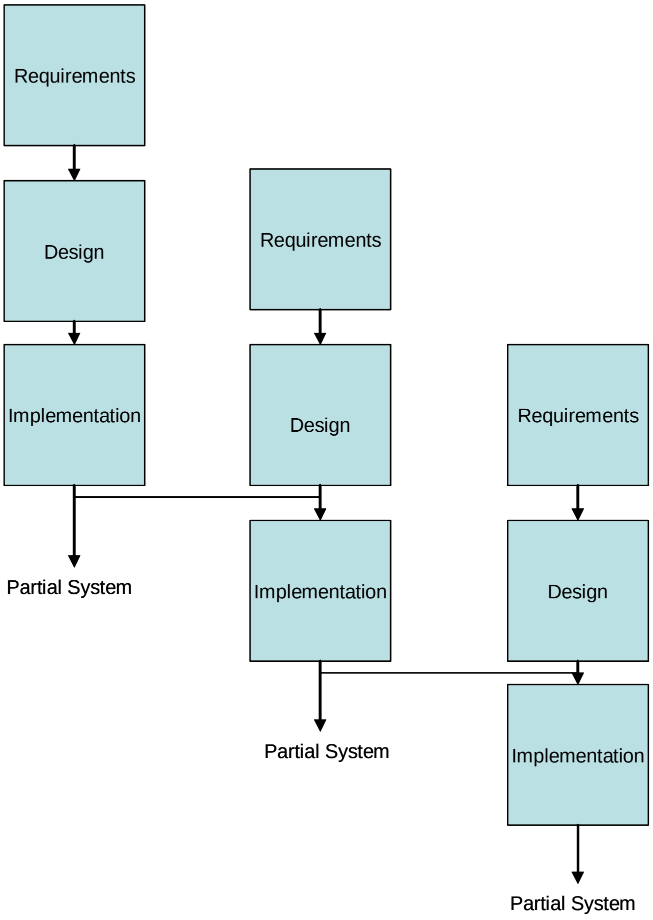


Figure 2. The Incremental Model[6]

The Evolutionary method, true to its namesake, allows the design to progress as the requirements change. In a variation of this model, the software products, which are produced at the end of each step (or series of steps), can go into production immediately as incremental releases.

The Iterative Model tackles many of the problems associated with the Waterfall Model; however, it does present new issues.

- Users need to be actively involved throughout the project. While this involvement is a positive for the project, it is demanding on the time of the staff and can add project delay.

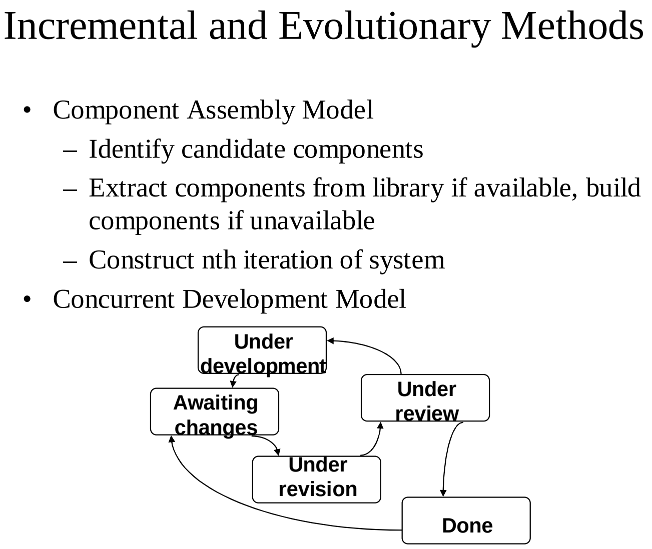
[6] Osmundson, J. Lecture notes. Naval Postgraduate School, Sep. 2003

- Communication and coordination are a must during project development, i.e.… requests for improvement after each phase may lead to confusion -- a system for handling requests will have to be used.

- The Iterative Model can lead to "scope creep," since user feedback following each phase may lead to increased customer demands. As users see the system develop, they may realize the potential of other system capabilities, which would enhance their work.

This is one of the big slow-down areas when using this model, which of course, takes longer to get the finished product to the market.

The next methods we studied were naturally the next that we applied to our project. The advantages and disadvantages we studied in class became readily apparent when applying them to our project. We found that scope creep became a real issue. As we learned more, the requirements that we had earlier perceived as somewhat concrete began to change and grow. For example, while this method showed improvement over the waterfall for our purposes, in the end, this method would take too long to get our speedy "prototype to production concept" to the client. Something more was necessary.



Incremental and Evolutionary Methods

- Component Assembly Model
  - Identify candidate components
  - Extract components from library if available, build components if unavailable
  - Construct nth iteration of system
- Concurrent Development Model

Figure 3. Incremental and Evolutionary Methods[7]

[7] Osmundson, J. Lecture notes. Naval Postgraduate School, Sep. 2003

Spiral Model for Evolutionary Design

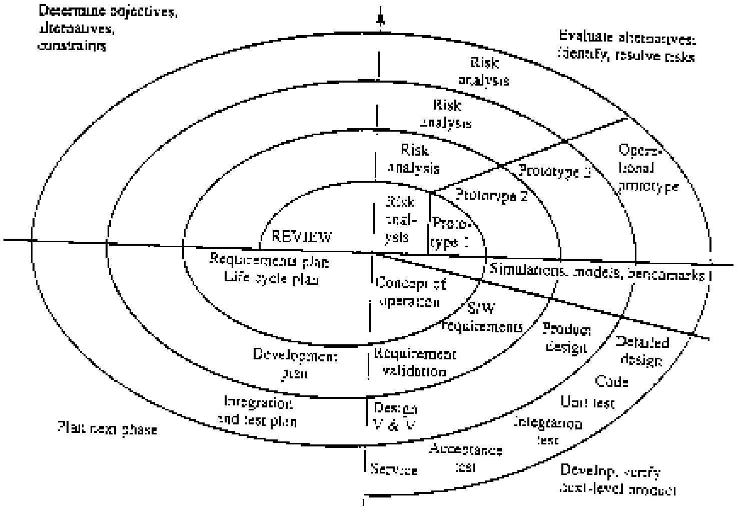


Figure 4. Spiral Model for Evolutionary Design[8]

3. Spiral Model

The Spiral Model minimizes risk by combining development procedures with risk management. When risks are recognized, project managers must determine how to remove or diminish them. The Spiral Model describes development as an iterative four-phase process, for combining the various approaches:

- Expression of needs
- Feasibility
- Prototyping
- Development of the final product

One great advantage of the spiral model is that it can be used when there is doubt about user requirements. This gives greater flexibility to the developers and increases the overall product quality.

When we started out with the spiral model, we were optimistic that this model might prove to be ideal for our client's requirements. It seemed to be especially suited

[8] Osmundson, J. Lecture notes. Naval Postgraduate School, Sep. 2003

for prototyping. The spiral model was also beneficial for the changing requirements (scope creep) we were confronting with our project. Still, this particular model is not necessarily a new concept. Therefore, a new question arose: If this is in fact the model we should be using, why hasn't someone already figured this out long before we had the opportunity? Furthermore, even though we were able to make better strides with our prototyping project using this model, something was still lacking. To make matters worse, we could not determine exactly what was missing. Consequently, there was only one thing to do… keep researching until we found a model that would demonstrate more promise.

The evolution of system development process models has reflected the changing needs of computer customers. Customers are demanding faster results therefore, more involvement in the development process and the inclusion of measures to determine risks and effectiveness are forcing changes in methods for developing systems. In addition, the software and hardware tools used in the industry are continuing to change as well. Faster networks and hardware support the use of more intelligent and quicker operating systems that pave the way for new languages and databases, and applications that are much more powerful than previous systems. These rapid and abundant changes in the system development environment have simultaneously generated the development of new, and more practical processes, and the demise of older process models that are no longer useful.

With all the changes in today's culture, nothing is ever fast enough. According to Pfleeger, current software engineering research has promoted rapid prototyping, which is a combination of both a throwaway prototype and an evolutionary prototype, where sections of the proposed system are built in order to determine the viability of requirements. "This type of prototyping, which integrates requirements, design, completion, and testing in one step, aids in understanding the requirements and determining the ultimate design."[9] Our goal is to prove through our research that the above models have become relatively obsolete and a revolutionary prototype for software

[9] Pfleeger, Shari Lawrence, *Software Engineering: Theory and Practice,* Upper Saddle River: Prentice Hall, 2001.

can be effectively designed, after requirements are identified, that can essentially go straight into production after testing, saving organizations significant amounts of both time and money.

In order to prove our theory, we have chosen a newer model that addresses the speed issue that is demanded by today's customers, a model that will get the product to the market faster than a competitor can. We think the following model can be the answer. Pfleeger outlines it is as follows:

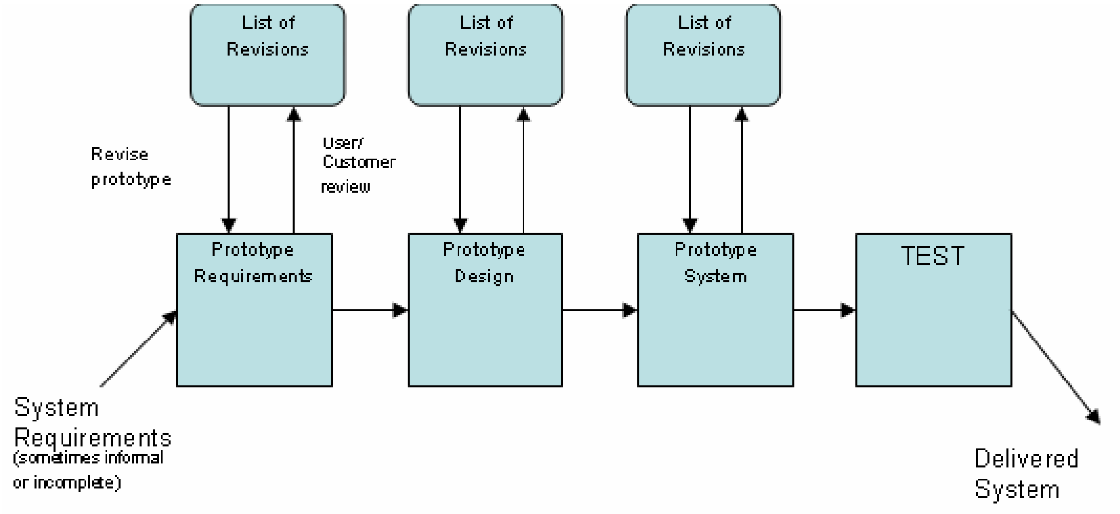


Figure 5. Pfleeger Model[10]

According to Pfleeger, this model can be the foundation for a successful process model where there is continual analysis so that the user, developer, and customer are aware of what is needed and anticipated. Pfleeger states, "One or more of the loops for prototyping requirements, design, or the system may be eliminated depending on the goals of the prototyping".[11] In this model, the prototype is not thrown away, but it is developed, refined, tested, and sent on to production. This model will save time for the developer, and get the product to the customer more efficiently. We found that even though this model looks different, it incorporates the benefits of the other models we researched without the disadvantages. While using this model, the prototype was

[10] Pfleeger, Shari Lawrence, *Software Engineering: Theory and Practice*, Upper Saddle River: Prentice Hall, 2001.

[11] Ibid.

constantly being revised throughout each development phase. This kept the project moving, especially when the scope or requirements from our client would unexpectedly change. This was the model we were seeking, one that would aid us in getting our prototype model as close to a production model as we could make it in the least amount of time without sacrificing quality.

B. RAPID APPLICATION DEVELOPMENT (RAD)

In order to get from prototype to production quickly we looked at Rapid Application Development (RAD). Rapid Application Development is one of the revolutionary archetypes of software production from the 1990's. RAD is based on several basic principles: (1) joint design teams with trained and motivated participants from both the development and functional user organizations, (2) integrated computer-aided software engineering tools to capture requirements and design information and reuse it for software development purposes, and (3) an iterative process for demonstrating the software to users as it is developed, using the immediate feedback to converge on useful solutions and minimize undesired surprises.[12]

Rapid application development (RAD) has long promised to be a boon to the computing community. The idea is to develop a method of designing software so that the whole process is quick, painless, and nearly effortless. The tools should be easy to learn, powerful, and allow the design to interface his/her freshly minted application with other applications, databases, and file types.[13]

For years software developers have viewed RAD with caution due to its radical practices and its lack of a formal methodology. These developers have focused their work on traditional models of structure and procedure, while RAD developers have turned to flexible methods of development. These methods are based on the rapid, cyclic production of smaller parts of a major system. As Ted Brockwood stated in his article, development under the RAD methodology should be "quick, painless, and nearly effortless." In reality RAD is quick, yet still requires considerable levels of effort.

[12] *Use of Rapid Application Development Techniques*, Logistics Management Institute, 1997

[13] Ted Brockwood, "*Rapid Application Development*", The Web Developer's Journal, 10 Jul 1997

RAD requires significant effort from all levels of management to make certain rapid progression of the project is controlled to prevent development from running off course. Rapid development is accomplished through stages using a cyclic development process that includes:[14]

- Requirements Analysis Stage to describe the high level requirement of the project, the system's business use cases, and scenarios. The requirements are edited into a System Requirements Specification or other proprietary requirement document.
- Project Plan/Estimate Stage to develop and author a document covering estimated costs, schedules, tasks, dependencies, responsibilities, approaches, communications, and goals. This document is constantly to be reviewed and edited to fit the needs of the project.
- Design Stage to evaluate and assign requirements in a hierarchical level to design the development process. The design stage includes assignment of the data module, GUI, object, architecture, integration, data conversion, reports, and business process rules.
- Prototype Stage to develop a working GUI model of the system's representation, interface navigation, and data incorporation. The prototype permits client review of the developer's interpretation of the system's requirements.
- Development Stage to expand the prototype into a working executable system. The development stage includes testing at the unit, system, and integration level; and the adherence to established system standards and GUI format.
- Change Control Stage to manage any changes in requirements or design standard.
- User Testing Stage to apply the test case established and defined in the design stage and refined through the development process. User testing

[14] *"RADD Methodology"*, Analysts International, 2000

includes the classification, risk acceptance, and documentation of observed bugs/errors.

- Deployment Stage to deploy, install, and implement the new system. The deployment stage shall also include user training, technical training to ensure proper system utilization.

We confirmed RAD is not a simplistic approach to software development. Rather it's an approach to make software development simpler using fluid methods. As each cycle of development has been completed (same as traditional spiral development models), lessons learned, mitigated risk factors, and codified requirements can be incorporated into the subsequent cycles. This increases the accuracy of requirements accomplishment and the accuracy of meeting the customer's needs.

RAD allows developers to build systems more efficiently by including multiple requirements reviews, incremental design, and the early engineering and presentation of a prototype. In fact, the cycle development method allows multiple returns to each stage of design to guarantee completeness. RAD requires development tools to be powerful, flexible, and easy to use. These tools also need to be able to take a designer from design, through prototype, to development with the same logic and code structure. Many prototype systems do not utilize logic and code structures to be easily transferred into executable/compiled code, which results in loss of efficiency. Effort and energy spent to design a prototype is lost when it must be significantly reengineered at the development stage.

Through our study of RAD and its associated techniques, we found a complementary method that became popular in the late 1990's: object-oriented (OO) methodology. The use of OO methods encourages quick development and allows for reduced rework and possible reuse.[15] These object oriented approaches represent a shift from more traditional development methods such as structured analysis and design. Those methods centered on complex systems using algorithms and other fundamental, generally very time consuming methods, such as the traditional waterfall. Object oriented

[15] Hirschberg, Morton A., *Rapid Application Development (RAD): a brief Overview*, Software Tech News, Volume 2 Number 1, 1998

methodology, on the other hand, uses methods which evolve around objects and classes as their building blocks. This adds value to utilizing RAD for our problem.

The main component of the object model is an "object."[16] There is more than one definition but generally an object is a real entity that exhibits some behavior. It also combines the properties of procedures and data into one package. Objects are instances of some class or group of items that exhibit similar behavior and characteristics. Objects have a state or value and an object's behavior is how it reacts to changes in its state. For example, a vending machine is an object that exhibits different behavior when its state changes by a user putting money into the machine.[17]

There are four elements that comprise the object model:[18]

- Abstraction—essential characteristics that distinguish an object from all other kinds of objects
- Encapsulation—a means of packaging an object so that only valid operations on it are allowed
- Modularity—decomposing a system into cohesive, loosely coupled modules
- Hierarchy—a way to rank or order different abstractions of objects.

Our research has shown the use of object models has a number of benefits. First and most important is that such systems tend to be resistant to change. This makes maintenance and enhancement easier. There is also the claim of reduced risk of failure for complex systems because the process calls for integration of requirements, processes, and data throughout the life cycle. The use of object models also increases the speed of development. This process fits our problem. We have determined that in order for our concept to be successfully applied, OO methods should be used. In our case, the same design can be applied to a much larger, enterprise wide problem with minimized rework.

[16] Maj Bachelor, Jim. Lecture Notes. Naval Postgraduate School, IS3020 Software Design, Spring 2003

[17] Ibid

[18] *Use of Rapid Application Development Techniques*, Logistics Management Institute, 1997

Despite these benefits, many experts recommend caution when turning to OO technology.

The first major reason for this caution is certain types of problem domains, such as computation-intense applications, do not lend themselves well to OO technology. A second reason is OO development requires a shift in thinking for systems designers educated in structured techniques. With this in mind, we felt an organization should not make a commitment to OO without an experienced staff. Despite these pitfalls, it is best to make use of OO knowledge by considering the process improvement possibilities. Also, while OO methods might take slightly more time to produce, the benefits received far outweigh the time costs.

An excellent example of DoD successfully utilizing RAD is the Air Force Computer System Squadron. Like most Air Force Computer Systems Squadrons, AMC CCS has traditionally devoted its efforts to producing and/or maintaining large-scale computer systems.[19] Today, as shrinking budgets require the DoD to achieve more with less money, organizations, military and civilian, are turning to automation to increase efficiency. However, software to perform the specific functions of a military organization is often not available commercially. As a result, AMC CCS created the Rapid Application Development team using modified processes, incorporating advanced speed-oriented development techniques, and taking advantage of new software development tools. These ideas are in line with what we determined is necessary for a strategy to be successful. The strategy focuses on the following:[20]

- Practicing evolutionary prototyping to converge on a solution as quickly as possible
- Using timebox development to control and limit the amount of time spent on each project
- Utilizing rapid development tools (e.g. 4th generation languages)
- Insisting on early and active user involvement throughout the development of the project.

[19] Sutherland, Jon and Belei, Bill. *Totally RAD – Rapid Application Development*

[20] Ibid.

Their managers expect shorter software development cycles with the use of web technology and Commercial Off The Shelf (COTS), and Government Off The Shelf (GOTS) products. Decreasing software development time has always been their goal. Today it's the overriding demand in a competitive environment. We have found that these methods are not specific to the Air Force; in fact, they are in use in many other programming areas. The benefit, as we see it, is time savings, which is one of the drivers for cost savings. Once again, it is proof that RAD works in a military environment.

The Air Force team used Rapid Development, Steven McConnell's book, as the focal point for its rapid development process. The process is identified in Figure 6.[21]

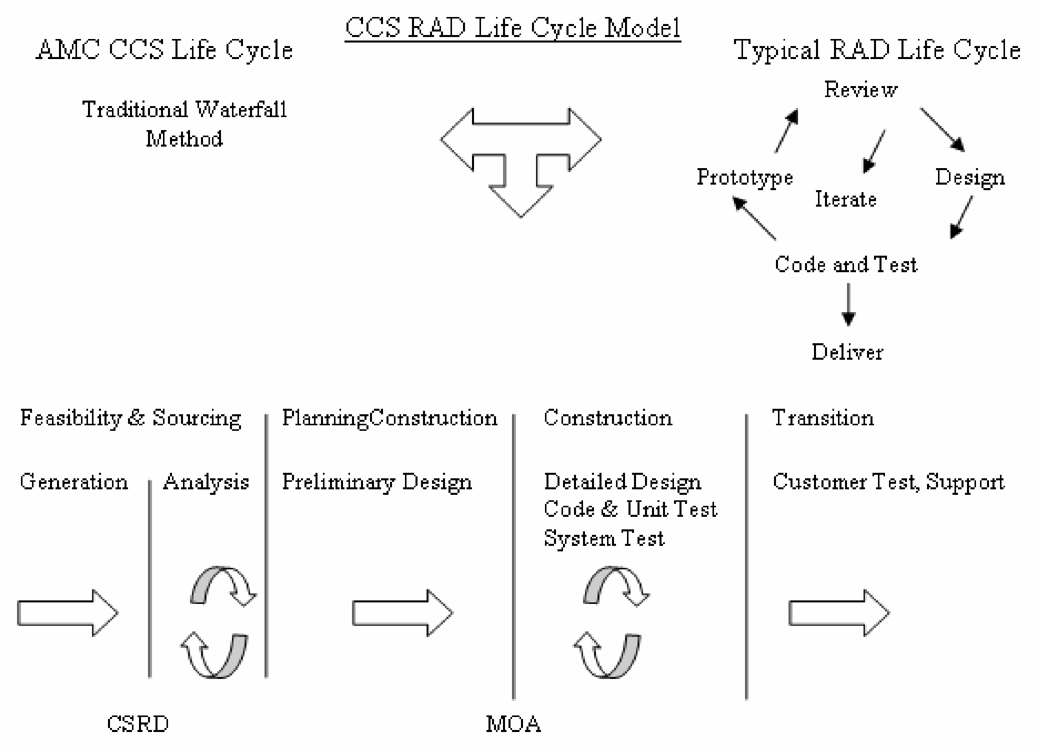


Figure 6. AMC CCS Life Cycle

Within the CCS RAD life cycle we were able to identify four project management phases. Because the RAD process is based on evolutionary prototyping, some functions may be repeated or the separation between detailed phases may be unclear. Then each of these phases were further sub-divided into more detailed phases.

[21] Ibid.

First was feasibility and sourcing. During this phase they introduced the customer to the RAD process, gathered requirements, ensured project fit within the scope of RAD. Second was planning. The idea was to prepare the project for the construction phase by designing the overall architecture and establishing a contract between developer and the customer. Third was construction. The project is designed in detail, coded, tested and demonstrated to the user in increments under the evolutionary prototyping concept. Fourth was transition. The last project management phase entails the transferring the new application to the customer's system and giving time for the customer to test the system in its destination operation environment. Following a successful test, the project enters the warranty period that is defined in the contract. We have found this to be an effective and productive technique and it would not be difficult to transfer this methodology to our application. It supports our principle of a rapid application production as the solution to our problem. The literature did not identify whether or not the prototype was discarded. We suspect, however, that the Air Force did what most developers do, which is discard the prototype. Our proof of concept supports the ideas used by the Air Force but then we take the prototype into production.

Creating successful rapid development capabilities requires vision, sound engineering processes, and a significant change in thought process. Staying current with the rapid advancement of tools and technology is required. Colonel Jones, Director of Communications and Information at AMC headquarters (AMC/SC) stated "In this era of outsourcing and privatization, it is absolutely essential that we retain a RAD capability as one of our core functions to support global mobility."[22] A rapid development capability allowed AMC CCS to more effectively meet the needs of the Air Force by producing applications better, cheaper, and faster. As it has been shown, RAD techniques have been successful in military applications. Our team has determined through research that RAD is the most effective application development method to solve our problem.

The benefits of Rapid Application Development to software development are clear. They significantly reduce the time required for prototype production through cyclic development. Unlike the waterfall method, cyclic development more quickly

[22] Sutherland, Jon and Belei, Bill. *Totally RAD – Rapid Application Development.*

identifies accurate requirements. This equates to time and money savings. In terms of DoD, this provides a significant benefit. All components of DoD now have to accomplish more with less money. Considering the nature of military activity, a process that allows for minimum development time is crucial. As the Air Force example shows, RAD fits the military style of short lead times and changing requirements.

The ability to revisit the design, prototype and development stages several times without loss of time and effort is another valuable benefit. RAD techniques incorporate this activity into the overall architecture thereby allowing for the best process understanding at the end of each stage. In other development models, there is neither the time nor the money do accomplish this. The end result is an imperfect product, and the DoD has numerous examples of software that fall into this category. RAD allows for more effective integration of users and developers in order to have a product that is at its optimum.

The use of Object Oriented models only makes rapid application development better.   Utilizing OO methods into RAD programming allows for additional increases to speed of development. Yet the benefits don't end after production is complete. By using OO methods, programmers are making best use of future money as well. OO methods make maintenance easier. This simply saves time and money. Future improvements are much easier to implement. Object oriented methods make it easier to understand the intent of different pieces of the development process. Again this leads to time and money savings.

Rapid application development is flexible. Often when software developers produce software for the government or military, by the time it is available for use, the end user is unable to take full advantage of it. Either because of the length of time required to produce the software, or the software doesn't do exactly what was required, or both. Producing software using RAD techniques minimizes the possibilities of either occurring. It has maximum scalability to expand or shrink to fit most any size project. Software production is fast and this is beneficial especially for the military, where time constraints are routine. It is not uncommon for requirements to change mid-process. RAD accounts for this with multiple iterations therefore no additional costs need to incur to stay on target. This not only saves time and money, it ensures the design contains the most current requirements.

C. REQUIREMENTS ANALYSIS

> The most difficult part of requirements gathering is not the act of recording what the users want; it is the exploratory, developmental activity of helping users *figure out* what they want.
>
> Steven McConnell, Author of *Software Project Guide*

In any undertaking of initiatives for application development the relative importance of the Requirements Development Phase can not be overemphasized. McConnell states:

> During requirements development the software concept becomes tangible through the creation of several versions of a user interface prototype and a user manual. This approach facilitates gathering the best possible set of requirements, lays a foundation for excellent architecture work, streamlines the project by limiting the time-consuming detailed requirements document, and keeps users of documentation off the critical path.[23]

In this section we will take an in-depth look at the requirements analysis phase of application development. In our attempt to provide a detailed analysis of the subject matter, we will first briefly define and discuss what we feel are the most relevant aspects of the requirements phase. We will then examine, compare and contrast the multiple facets of requirements analysis as they apply to both industry and Department of Defense development methodologies and standards. We will also discuss industry best business practices and the development and implementation of new methods as they apply to applications and systems development and prototyping. By the end of this chapter we will have identified what we feel is a pertinent development strategy recommendation for requirements analysis for future software project applications.

In gaining a greater understanding of the requirements analysis phase of application or software development, the first requirement is to understand the basics of the overall software development cycle. There are many different types of approaches,

[23] Software Project Survival Guide, Requirements Development, Steven C. McConnell, http://www.stevemcconnell.com/sgreq.htm

methodologies, and models utilized in application development (i.e. Waterfall, Evolutionary, Incremental, Prototyping, Spiral, Object-Oriented development models…etc., all of which will be discussed in greater detail in a later chapter), but all have a common basis in development that involve defined steps to include: project evaluation and planning, requirements development (analysis and specification) and definitions, system design, program design, program implementation (coding), unit testing, integration testing, system testing (verification and validation), system delivery (implementation) and system maintenance, similar to those described in the IEEE/EIA 12207 or ISO[24] software life cycles and the Software Engineering Institute (SEI) Capabilities Maturity Model (CMM)[25].

In discussing government and industry standards we feel it relevant to touch on the evolution of Department of Defense (DoD) software standards, specifically MIL-STD-498 "Software Development and Documentation," which endorsed DoD standards being converted to non-government standards and maximize the use of commercial practices in government software projects. MIL-STD-498 required industry to participate during the proposal phase of software development projects and recommend commercial solutions. Based on the processes, methods, and software engineering environments; MIL-STD-498 incorporated industry's best practices to include new developmental methodologies such as Rapid Application Development (RAD), Spiral Development and other extreme prototyping methods, as well as promoting the use of traditional methods such as the Waterfall Development method in order to determine the best strategic method for the development of software projects. MIL-STD-498 was later replaced by IEEE/EIA Standard 12207 in May, 1998. The "commercial" IEEE/EIA 12207 Standard expanded the scope of MIL-STD-498 to include: Standard for Information Technology: Software life cycle processes, Life cycle data, Implementation considerations, and it also specify the acquisition process from pre-contractual initiation of a project to acceptance

[24] IEEE/EIA 12207 Standard for Information Technology – Software Life Cycle Processes or relevant International Standardization Organization (ISO) standards. They define a set of recommended development activities and documentation alternatives for software intensive systems.

[25] The Software Engineering Institute (SEI) Capability Maturity Model (CMM) for software development - Feb., 1993. The CMM defines increasing maturity level requirements for software and is used to improve organizations' software engineering process. The assessment mechanism based on the CMM is widely used by government procurement agencies to evaluate potential contractors.

and completion. The standard details a sequence of steps that the customer and developer must undertake to assure a quality software product.[26] This transition from DoD specific software requirements to commercial standards illustrated the basic need to combat the ever increasing cost associated with government software development projects (and the critical drivers specific to software development and methodologies in general) while taking advantage of the common software improvement activities in industry.

With the advent of new technologies and the need for systems that focus on information intensive applications, there is a driving need for new iterative developmental approach that can rapidly adapt to the changing environment. According to Dr. Rick Hayes-Roth's work in *Architecture, Interoperability, And Information Superiority*[27]:

> DoD has expressed goals for achieving information superiority without specifying how the IT systems it builds should accomplish that goal". The DoD is moving ahead releasing a series of architectures, especially the Joint Technical Architecture (the JTA), and creating integrated C4I systems increasingly consistent with the JTA. DoD has a great need for incremental approaches, because it has significant investment in current systems and a limited budget for innovation.

It's important to point out the need for the development of incremental approaches that are paramount to not only the future of DoD operations, but to industry as a whole. The requirement for increased innovation on limited budgets is a reoccurring theme among many organizations regardless of whether they are a DoD or commercial entity.

Now that we have taken a brief look at where we have been and where we are going, we have presented the basic foundation and focus for the thought processes that drive our analysis of software standards for industry's best practices and methodologies, thus we return to our subject matter on requirements analysis. Although our initial focus discusses the requirements analysis phase, we are in no way diminishing the relevance or

[26] 4.0 Government and Other Standards, Dr. John Osmundson, Software Project Management, IS4300 Presentation Notes, Naval Postgraduate School

[27] Architecture, Interoperability, And Information Superiority Dr. Rick Hayes-Roth, Naval Postgraduate School September 29, 2003

importance of the project evaluation and planning phase. For our purposes we will make the bold assumption that all pertinent measures in the previous phase have been adequately satisfied.

As previously referenced, the requirements development process is where that critical link or relationship between user and developer is consummated in order to produce a clearly defined specification. McConnell goes on to state requirements development consists of the following three related activities: gathering candidate requirements, specifying requirements, and analyzing requirements. According to McConnell gathering candidate requirements, "…is done by interviewing potential users about the system they want, reviewing competitive products, building interactive prototypes, and so on." This statement may appear to be a generalization to the inexperienced developer, but we feel it is perhaps the most important aspect of requirements analysis. Major reasons for the problematic nature (or resultant failures) of a software project can be directly related to a lack of detailed requirements or inadequate systems specifications; both of which can lead to project creep of both scope and time…and those two factors relate to increased cost. A study conducted by the Software Engineering Process Office of SPAWAR in 1999 states that of all government software projects "70% of all rework is caused due to inadequate requirements definition."[28] McConnell goes on to provide the following overview as recommended general steps for development of requirements:

1. Identify a set of key end users who collectively have the credibility to define the software the team is building.

2. Interview the end users to create a set of preliminary requirements.

3. Build a simple, interactive user interface prototype.

4. Show the simple user interface prototype to the key end users and solicit their feedback. Continue revising the simple prototype, keeping it simple,

[28] Software Engineering Process Office, *Software Project Management Course Notes,* SPAWAR Systems Center, San Diego, California, 1999

showing it the end users, and revising it again until the end users are excited about the software concept.

5. Develop a style guide that codifies the prototype's look and feel, review it, and put it under change control.

6. Fully extend the prototype until it demonstrates every functional area of the software. Make the prototype broad enough to cover the whole system, but keep it as shallow as possible. It should demonstrate the functional area, not actually implement it.

7. Treat the fully-extended prototype as the baseline specification. Put it under change control. Then require the developed software to match the prototype exactly, except for changes approved through the change control process.

8. Write the detailed end-user documentation based on the prototype. This detailed end-user documentation will become the detailed software specification, and it should also be put under change control.

9. Create a separate, non user interface requirements document for algorithms, interactions with other hardware and software, and so on. Put that document under change control.

As illustrated by the lengthy steps for the development of requirements it is safe to say this is no trivial undertaking. In addition to gaining a better understanding of these general steps as a supporting developmental tool, we feel that further research into the very nature of what a requirement is was warranted. Requirements can be defined in a myriad of ways, but we feel following a structured developmental approach, such as one of the previously mentioned software life cycle methodologies, should be applied no differently. In order to extract good requirements, the dynamics of basic requirements principles must be identified and criteria for measuring those requirements be established. According to noted author Ralph R. Young's work in the field of requirements analysis, establishment of a list of principals for good requirements development and the criteria for good requirements is critical (requirements that we feel are representative of the best practices in industry).[29] The basic fundamentals of Young's work are listed as follows:

- Principles of Good Requirements Development:

    i. Requirements extraction follows a formal process

    ii. All customers, users, stakeholders are identified – different viewpoints of the system are utilized

    iii. Requirements are not simply taken as given but are re-validated using in-depth interviews

    iv. Requirements statements avoid methods of implementation

    v. Requirements are testable – testers are involved in requirements definition

    vi. Requirements are documented

        1. Documentation has a hierarchical structure

        2. Documentation shows traceabililty of requirements

    vii. Documentation has version numbers A formal change procedure is used

    viii. Requirements are prioritized

- Criteria of a Good Requirement

    i. Necessary – Can the system meet prioritized, real needs without it?

    ii. Verifiable – Can one ensure that the requirement is met in the system?

    iii. Attainable – Can the requirement be met in the system under development?

[29] Effective Requirements Practices, Ralph R. Young, pp82-83, Addison-Wesley, 2001

iv. Unambiguous – Can the requirement be interpreted in more than one way?

v. Complete – Are all conditions under which the requirement applies stated? Are all known requirements stated?

vi. Consistent – Can the requirement be met without conflicting with all other requirements?

vii. Traceable – Is the source of the requirement known, and can the requirement be referenced throughout the system?

viii. Allocated – Can the requirement be allocated to an element of the system design where it can be implemented?

ix. Concise – Is the requirement stated simply and clearly?

x. Implementation free – The requirement should state what must be done without indicating how.

xi. Standard constructs – Requirements are stated as imperative needs using "shall."

xii. Unique identifier – Each requirement should have a unique identifying number.

These principles and criteria establish a solid baseline for the framework of gathering requirements. In other words they help developers focus their information gathering to facilitate extracting useful and essential information from users that may otherwise be missed if less than structured methods are utilized. Therefore the use of an in depth interview process with potential users of the system proves to be vitally essential. This brings us back to McConnell's first activity of "Gathering candidate requirements." Following McConnell's lead in identifying a set of key end users that "provide guidance in defining software requirements", points out the importance of recruiting the right personnel. However, he makes a point of project leaders selecting users; while this may be advantageous in some respects, it may also lend to an unintentional, biased selection of those who think and act along the lines of the leaders. This may lend to the development of a stagnant environment, and may not foster an effective and innovative atmosphere for "thinking outside of the box." Additionally, McConnell focuses on distinguishing the difference between "in-house" software projects (which only requires a handful of users, and is fostered by making the project part of their job description), and what he refers to as "shrink wrap software" (where recruitment takes place, but it requires more planned and structured interactions). To tie these previous issues together we feel that a methodology of end user selection should be as clear as of the rest of the sub-processes that we have identified, or will be discussing throughout this analysis. Using a structured approach we have found through our work in the Northwest Region, that end user selection is equally vital to project success. While we agree with the main premise behind identifying and interviewing end users, we recommend that this selection focus on the latter; McConnell's more structured interaction approach. What we propose as a structured methodology for team selection and requirements analysis is outlined as follows:

1. Depending on organization size (we will revisit this issue in a moment) we first recommend the creation of working groups that are representative of the workforce population. While traditional work groups usually comprise only the "best and brightest" performers in the organization we believe that even the least capable individual may have a "moment of clarity" that may provide an organizational transformational breakthrough. That stated we do promote teams chaired (or facilitated) by the "performers" within the organization.

2. While traditional teams have a combined makeup of all the organization's "performers" at all levels, they may not capture the true essence of the user perspective at all levels. What we propose is a separation of user levels (upper, middle and lower) into individual working groups. We recommend that each user group level remain isolated from the other during the initial requirements phase. This is done to ensure the integrity of the information that is extracted from the different levels. Think of this

methodology as a concept that is analogous to three different people, with similar life experiences and backgrounds, viewing a painting in a museum. Each person has a different perspective or reality of what the painting represents to them, and all may contribute to the general understanding of the work to a fourth viewer who is untrained in the in-depth analysis of abstract art.

3. Getting back to the issue of organization size, if the organization is of "enterprise" stature (meaning an organization with multiple geographically dispersed nodes) we recommend the developmental members of these teams be pulled from each node and consolidated in a central location for the required focus group meetings. This, we understand, may be an initial costly expense for an organization, but in the bigger scheme of things it greater facilitates getting things right at the onset of the project…which may equate directly to reduced cost in the coming software development cycle.

4. Establish a clear objective and provide a concise, detailed, and structured plan (for each level) for the working groups to facilitate. Execute the plan and compile the information.

5. As developers, conduct an "off-site" analysis of the information collected in order to provide a complete picture of the "as-is" organization and its process flows from the perspective of each independent level and piece together the interrelating functions of the three levels to develop the organization view. Provide this analysis to the individual working groups to see if your information reflects the organization structure and process, refine your assumptions, and finalize.

6. From there move into the second stage of the approach that focuses on the "to-be" requirements of the potential system. Again you will do this keeping the user teams at all levels isolated.

7. Again developers will perform analysis of the “to-be” picture and combine the new interrelating functions to develop the new organizational view and provide this information to the individual working groups for refinement and formalization.

8. Once these two phases of analysis are complete, then-and only then, will the third stage of the approach begin. This stage consists of the combination of one working group (composed of all three levels and down-sized a bit if applicable) that will iterate with developers through the remainder of the software development cycle.

9. While this proposed methodology may seem a bit complex and lengthy, we feel that a complete and thorough analysis provides for increased prevention of scope creep in the later stages of the development cycle.

One issue that may be transparent in this approach is that this can be easily scaled to compensate large (production-level applications) and the development of simple prototypes (should the need arise). Additionally it does make reference to the impact of time on the development cycle. By this we mean that in the second and third stages of the proposed development methodology, the level of change is directly proportional to the amount of change required in the overall system. If there is little change required, as in adding new capabilities and functionality to an existing system (otherwise referred to by Jess Thompson, Research Director for Gartner Inc., as one of the applications integration options known as the “leave and layer” approach)[30] the relative time involved in the process should not be as extensive as if a completely new system is to be developed in order to replace an aging, and technologically inferior system (otherwise know as the “rip and replace” option). According to Thompson the “leave and layer” strategy, is described as a “broker approach that puts new technology at the center of an IT environment.” “This is a new style of application that uses a mixture of new code and some that is already in place.” We will discuss both of these approaches in greater detail in a subsequent chapter.

[30] Interview comments from Jess Thompson, Research Director, Gartner, Inc., Strategies For Application Integration, Mark Hollands 12 November 2003 http://www.gartner.com/2_events/symposium/2003/asset_54245_1115.jsp

Before we digress too far from our requirements analysis approach, let us return our focus to the remaining aspects of McConnell's remaining activities of "specifying requirements" and "analyzing requirements." From McConnell's perspective, specifying requirements is "done by committing the gathered requirements to tangible media, such as a written requirements document, project storyboards, interactive user interface prototype, or some other media." It is here we focus the labors of our previous candidate requirements into detailed specifications. It is in this area that we first touch on the topic of developing prototypes, our main topic of research. Before we get there, let's finish our discussion on specifying requirements. While McConnell suggests that our written documentation begin with simple user interfaces to extract specifications, his focus is mainly on keeping the prototype as simple as possible in order to present many alternatives to the user before committing to a particular approach. He states:

> Developing the prototype in this way helps users visualize the software they are specifying, which minimizes the problem of users not knowing what they want until they see it and then changing their minds later in the project. This kind of prototyping minimizes the risk of creeping requirements, which is traditionally one of the most serious risks a software project faces.

In this aspect of rationalization we are in total agreement. McConnell continues to expand on this rationalization of the specification process through the use of other valuable approaches such as those of storyboarding.[31]

McConnell continues to develop his approach illustrating the use of the prototype with constant revisions in order to generate excitement and support for the software, but he is careful to point out one glaring fact, "it may seem developers are spending an inordinate amount of time working on something that will be thrown away, but this upstream activity is a good investment in preventing costly downstream problems." Additionally, he reminds developers to inform users that the prototype is "just a prototype" and to remember above all that "It's a Throwaway Prototype." The author expands his rationale behind the continued refinement and development of the prototype by "demonstrating the functionality of the prototype across the full breadth of the

[31] Storyboarding is a low tech approach to user interface prototyping by using paper drawings of screens, dialogs, toolbars and other elements they would like the software to have.

software with the least amount of work involved in the process." He describes the prototype process as "a useful dead end, but a dead end nonetheless." He then explains how the prototype development should be fully extended to serve as a baseline specification or reference point in which the developmental effort will align, enabling requirements satisfaction, providing for end-user documentation, and providing for test plans to be developed in parallel with architecture, design and implementation work.

In addition, with reference to the author's suggestion to abandon the fully-extended prototype and to treat it merely as the "baseline specification," he makes the suggestion to write the detailed end-user documentation based on the prototype and he states the following in support of his argument:

> Developing end-user documentation first eliminates the necessity of producing a standalone technical specification. The document that is produced is more understandable to end users than is the typical technical spec, which improves the quality of end-user feedback about the software. The early development of the end-user documentation fleshes out the software demonstrated by the UI prototype, filling in gaps, and flushing out inconsistencies.

Once again, we are in agreement with the author. Using the fully-extended prototype in the development of end-user documentation, which saves a great deal of time and effort in re-generating this information from a typical technological specification, is a vital time saving measure in the overall process. However, we feel that the prototype serves an even greater purpose in continued system development and do not feel the prototype's usefulness is terminated at this stage. While it is true that most prototypes are developed with the full intention of being a disposable item, we feel that there is merit in the further development of the baseline code and the subsequent transition of the prototype (through an iterative development cycle or methodology) into a production level system. Implementing the procedures and methods we discussed in relation to requirements analysis is a vital element in the path towards turning a prototype into a production level system. Without a well defined and structured requirements analysis phase any developmental undertaking, regardless the size of the implementation is doomed to failure and will greatly be influenced by the negative ramifications of schedule and cost overruns, which ultimately will determine the overall success or failure of the project. Additionally, the relative importance of this concept is that a well structured requirements analysis approach greatly enhances the strategy of system development as it relates to dealing with change. Much like the idea we previously discussed on the irrelevance of the size of the implementation, these measures promote high adaptability and flexibility to the levels of change required (the concepts of “leave and layer”, “Rip and Replace”, or complete system development). Through a combination of the methods and approaches discussed in this chapter, we feel that a true methodology for reducing the time and expenditure from prototype to production in Information Technology application development is truly achievable.

III. "PROOF OF CONCEPT" CASE STUDY

A. INTRODUCTION

Through our research in the areas of prototyping, rapid application development and requirements analysis, we explored methodologies and concepts that were representative of industry's best practices. Our findings were put into practice in an effort to develop a structured procedure that would provide the ability to take a system concept from prototype to production. Once again our focus was directed to find those methods that would allow us to continue the use and development of a prototype from its infancy, on through full development without abandonment at any stage of the process, finishing with a complete implementation and maintenance system life cycle. Throughout the following chapter we will attempt provide a detailed, chronological synopsis of the procedures and methods we used in the development of our system prototype.

Before we begin the discussion of our selected case, we feel that it is important to reiterate the fact that our "proof of concept" case study research is limited to a single sample project. What follows is a detailed description of our developmental efforts as they apply to the tools, techniques and methodologies of our selected research areas. While this single sample may not be reflective of every development effort within industry and the DoD, we feel that the relevance of the case in the terms of its nature as a pure developmental effort has value that can be applied to virtually any type of application/prototype development effort.

B. OBJECTIVES

As we mentioned in our introductory chapter, the initiative our team undertook was a concerted and dedicated effort spearheaded by Rear Admiral Leendert R. Hering, Sr., USN; Commander, Navy Region Northwest and his dedicated staff of professionals in the NW Region Sheltering/Family Housing Community. RDML Hering approached the Naval Postgraduate School with a request for the development of a proposal to create a business solution to manage bachelor housing transactions for permanent party and transient guests. The purpose of the Bachelor Housing initiative was to identify an efficient and cost-effective means to reduce and/or eliminate the requirement to man bachelor housing Front Desks 24/7 through an integrated delivery vehicle. The overall driver of the project is transformational change, which is required for the Navy Region Northwest in order to meet severe funding reductions. The initiative also directly supported the Navy's Sea Enterprise initiative and its goals to reduce infrastructure overhead, improve productivity, and streamline processes through technological advancements.[32]

C. LOCATION OF STUDY

The subjects of our case study centered on the various bachelor housing operations of the Navy Region Northwest; specifically the Visiting Quarters of Naval Submarine Base Bangor and Naval Station Bremerton in Washington State. Our research and development effort began through the initial conduct of multiple site visits to evaluate the organizational culture and climate in order to gain a thorough understanding of our client and the current operational picture (the "As-Is" process model). Additionally we conducted a review of the systems supporting the BOQ processes specifically: property management, telecommunications and billing system, the underlying data architecture along with the existing IT infrastructure. Our initial analysis allowed us to place some validity on our basic assumptions about the organization and the processes. To give our findings in a brief synopsis we found:

- The current system in use for bachelor housing management they was a "top-down" DoD implementation spearheaded by the Air Force almost 5 years ago. It was an application that was designed for the hotel industry but was modified for DoD needs.
- While the focus on "becoming a better business" (among many other factors) was the impetus for change, the program that they are using was not tailored specifically to the needs of the Navy, and required an extensive amount of off-line (downtime) to accomplish simple tasks. One additional factor is the various operations across different navy regions

[32] Memorandum: E-business Solution for Bachelor Housing Reservation Management, L. R. Hering, CNRNW, 25 July 2003

possessed somewhat varied capabilities in terms of the modules they were allowed to purchase due to funding constraints. In short we found that although similar in basic operation, bachelor/visiting quarters operations is not traditional hotel business.

- They are bound by excessive rules and regulations that industry does not have to consider. The organization has undergone many technological transitions that have been "fixes" but not solutions, and the organizational culture has been severely "soured" by these (our current resource gathering) types of initiatives.
- Additionally, during our visits it was brought to our attention that the Naval Facilities Command had initiated a Business Case Analysis (BCA) to address the very same concerns for Navy Bachelor and Family Housing, and that all housing and installation operations we soon going to be consolidated under a new command structure called Chief of Naval Installations (CNI). A detailed organizational overview and history and report of our initial findings for the Northwest Region can be found in Appendix A.

An important to point to emphasize is our research and requirements gathering efforts were the subject of the ongoing analysis of the BCA for a future bachelor and family housing solution. This presented us with the unique and time consuming challenge of continuous justification and communication of our project initiatives throughout multiple venues for AMS consulting group’s conduct of the BCA (i.e. working group forums, conference calls, and command visits). This issue in itself was a major “time sink” for our actual efforts during the project development timeline.

D. PROTOTYPE DEVELOPMENT: HOW WE DID IT

Our initial areas of analysis indicated the need for a much more structured and refined rapid developmental approach if we were to successfully provide a feasible solution or alternative for not only the Navy Region Northwest, but for the Naval Enterprise as a whole. At the onset of the project we immediately employed the use of rapid prototyping development techniques and methodologies in order to create a medium for extracting our initial requirements. Our approach efforts centered on attempts to:

- combine technical and functional Subject Matter Experts (SME) within one team to enhance the creation of a more detailed and accurate requirements document
- create an initial list of detailed requirements in order to foster reflection in determining the interdependencies among emerging requirements
- provide analysis of those interdependencies in an easy to use format to assist in the continuous refinement of the user interface prototype for successive iterations with the end user in the extraction of the business rules and the development of detailed systems requirements.
- control development of the system to ensure the client gets the system functionality they require rather than having to accept a prepackaged, COTS solution that may not necessarily meet the desired needs.
- facilitate maximum interaction and involvement of stakeholders throughout the development process.
- create options

With the employment of the concepts identified in our initial approaches, a proposed Enterprise Solution was developed that provided a greater insight on the development of the Kiosk as the enabler to this transformational change. The details of the solution are illustrated in the following figures.

The Enterprise Solution…

Step 1. Service member arrives at the command Travel Management Office (TMO) for official travel orders preparation.

Step. 2 TMO prepares order and provides TO# for orders and submits request for tickets to SATO travel.

Step 3a. SATO provides airline itinerary and tickets.

Step 3b. Service member accesses BQ web-based interface from TMO terminal.
Step 4. Nation-Wide VQ reservations server is accessed.
Step 5. SM searches for base VQ closest the TAD destination.
Step 6. System returns closest base in geographic region.
Step 7. VQ is located.
Step 8. SM inputs data for room reservation (to include: name, SSN, e-mail, TO#, preferences for accommodations, GTCC, etc…)

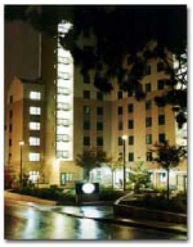
Step 9. SM submits completed data. Reservation is confirmed w/ BQ/VQ (TO# is captured for verification and tracking). If a room is not available, the system will check all available locations within a 30 mile radius of TAD location and return an available location for reservation. (If there are no locations available see Step 11.)
Step 10. Reservation complete. The system sends an e-mail confirmation to the service member and the submitting TMO (for accountability), and provides directions from the SM's arrival airport to the VQ.

The Enterprise Solution…

Step 11. If alternate attempts at reservations are exhausted, the system will return an electronic Certificate of Non-Availability (CNA will be issued from the initial VQ location).

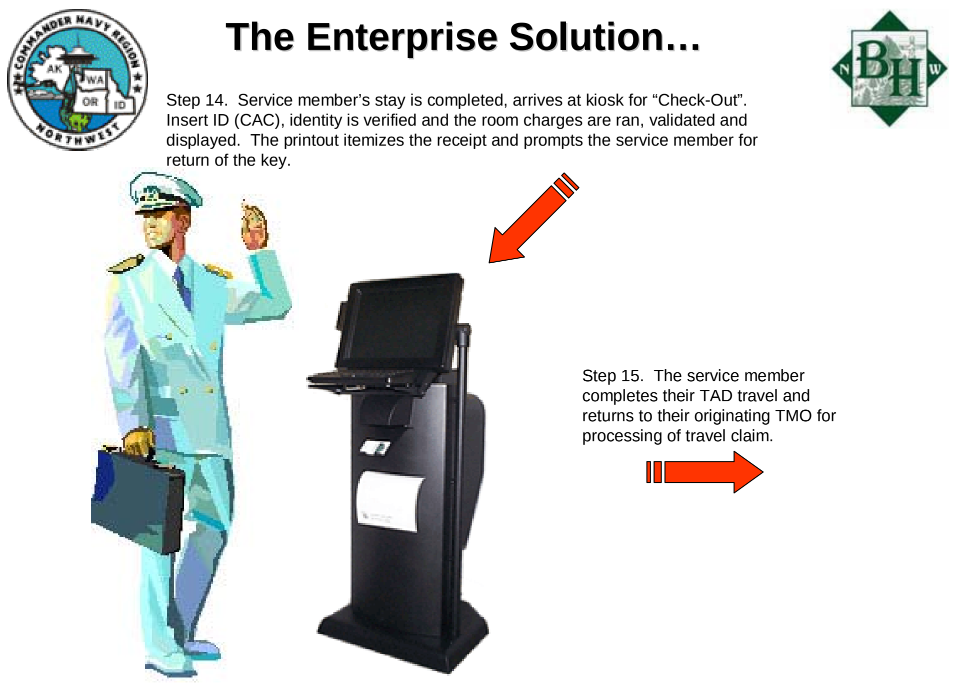
Note: Additional possibility for system is to provide a list of alternate civilian locations and links to their web sites for reservations. (The application must be able to capture costs for outside reservations once transactions are completed, data is entered into history for cost accounting). Once reservation is completed, enter civilian hotel location & room reservation w/ cost per night.

Step 12. Service member arrives at BQ/VQ.



Step 13. Arrives at Front Desk "Kiosk" Hotel Point for "Check-In" Processing. Inputs ID (CAC) for identification and enters confirmation number. System pulls up reservation, verifies room and request credit card information. Once room is charged to account, a key is coded and issued. A Check-in receipt is printed for the service member.

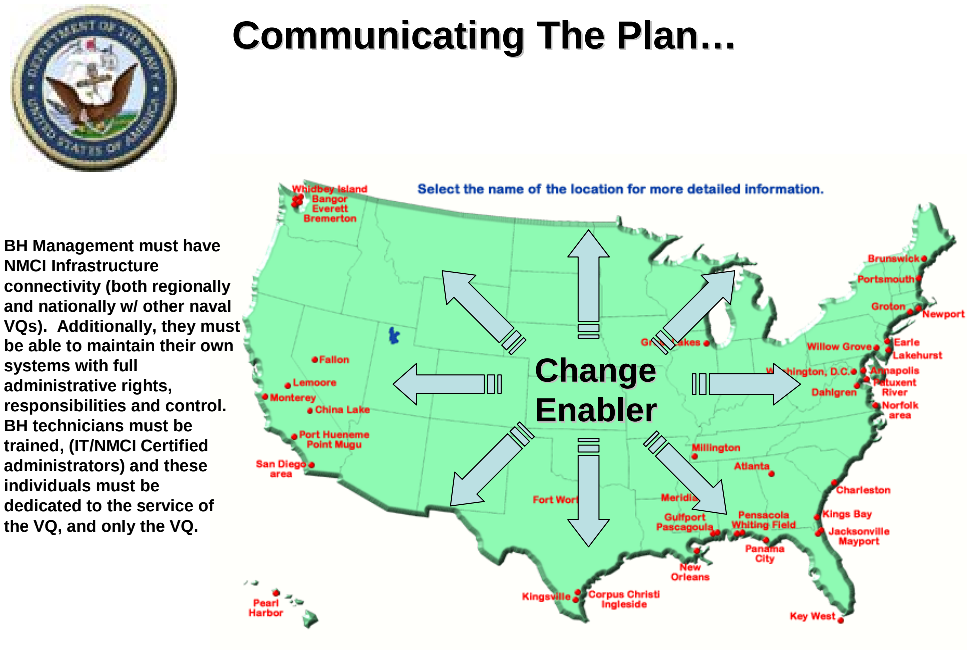
Note: System incorporates IT based program for reservations and management tracking (prototype). System Specifications/capabilities: Click Kiosk for info.



The Enterprise Solution…

Step 14. Service member's stay is completed, arrives at kiosk for "Check-Out". Insert ID (CAC), identity is verified and the room charges are ran, validated and displayed. The printout itemizes the receipt and prompts the service member for return of the key.

Step 15. The service member completes their TAD travel and returns to their originating TMO for processing of travel claim.



Communicating The Plan…

BH Management must have NMCI Infrastructure connectivity (both regionally and nationally w/ other naval VQs). Additionally, they must be able to maintain their own systems with full administrative rights, responsibilities and control. BH technicians must be trained, (IT/NMCI Certified administrators) and these individuals must be dedicated to the service of the VQ, and only the VQ.

Select the name of the location for more detailed information.

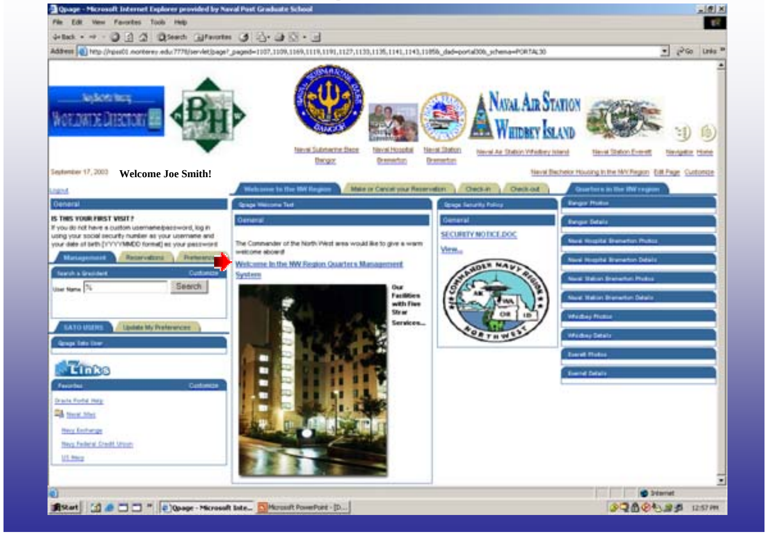
Change Enabler

Figure 7. The Enterprise Solution[33]

[33] Slide excerpts from Commander Navy Region Northwest, E-Business Transformation Solution for Bachelor &Transient Housing Management, MS PowerPoint file: CNRNW Transformation Brief 22Sep03, A. Abdullah

From our initial vision, the creation of a web-enabled portal was instrumental in achieving the overall desired functionality of the encompassing system. In that aspect, an early developmental prototype was created within the Oracle 9i AS (Application Suite) environment with the full intent to continue development of the system in a complete oracle applications layer with a robust supporting Oracle relational database. Screenshots of the initial prototype are provided below:

Bachelor Housing Web-Enabled Interface



September 17, 2003 Welcome Joe Smith!

IS THIS YOUR FIRST VISIT?
If you do not have a custom username/password, log in using your social security number as your username and your date of birth [YYYYMMDD format] as your password

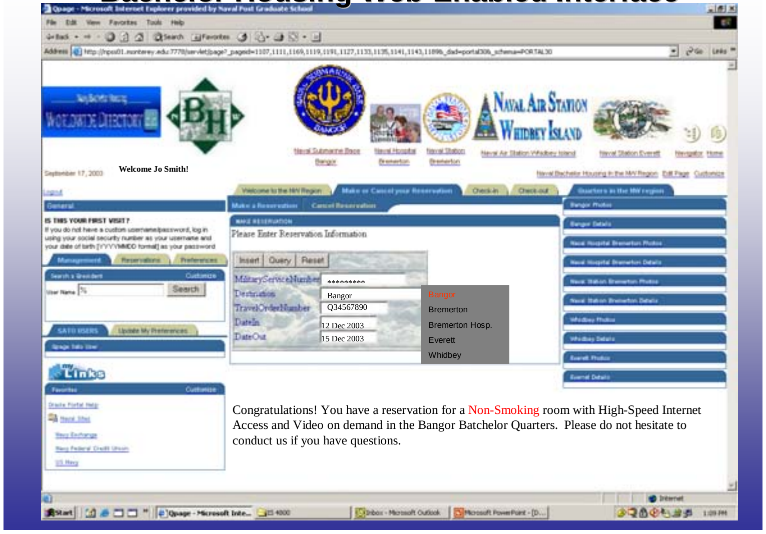
The Commander of the North West area would like to give a warm welcome aboard!

Welcome to the NW Region Quarters Management System

Our Facilities with Five Star Services...

SECURITY NOTICE.DOC

Bachelor Housing Web-Enabled Interface



September 17, 2003 Welcome Jo Smith!

IS THIS YOUR FIRST VISIT?
If you do not have a custom username/password, log in using your social security number as your username and your date of birth [YYYYMMDD format] as your password

Please Enter Reservation Information

MilitaryServiceNumber: *********
Destination: Bangor
TravelOrderNumber: Q34567890
DateIn: 12 Dec 2003
DateOut: 15 Dec 2003

Bangor
Bremerton
Bremerton Hosp.
Everett
Whidbey

Congratulations! You have a reservation for a Non-Smoking room with High-Speed Internet Access and Video on demand in the Bangor Batchelor Quarters. Please do not hesitate to conduct us if you have questions.

Figure 8. Bachelor Housing Web-Enabled Interface: Oracle 9iAS Prototype [34]

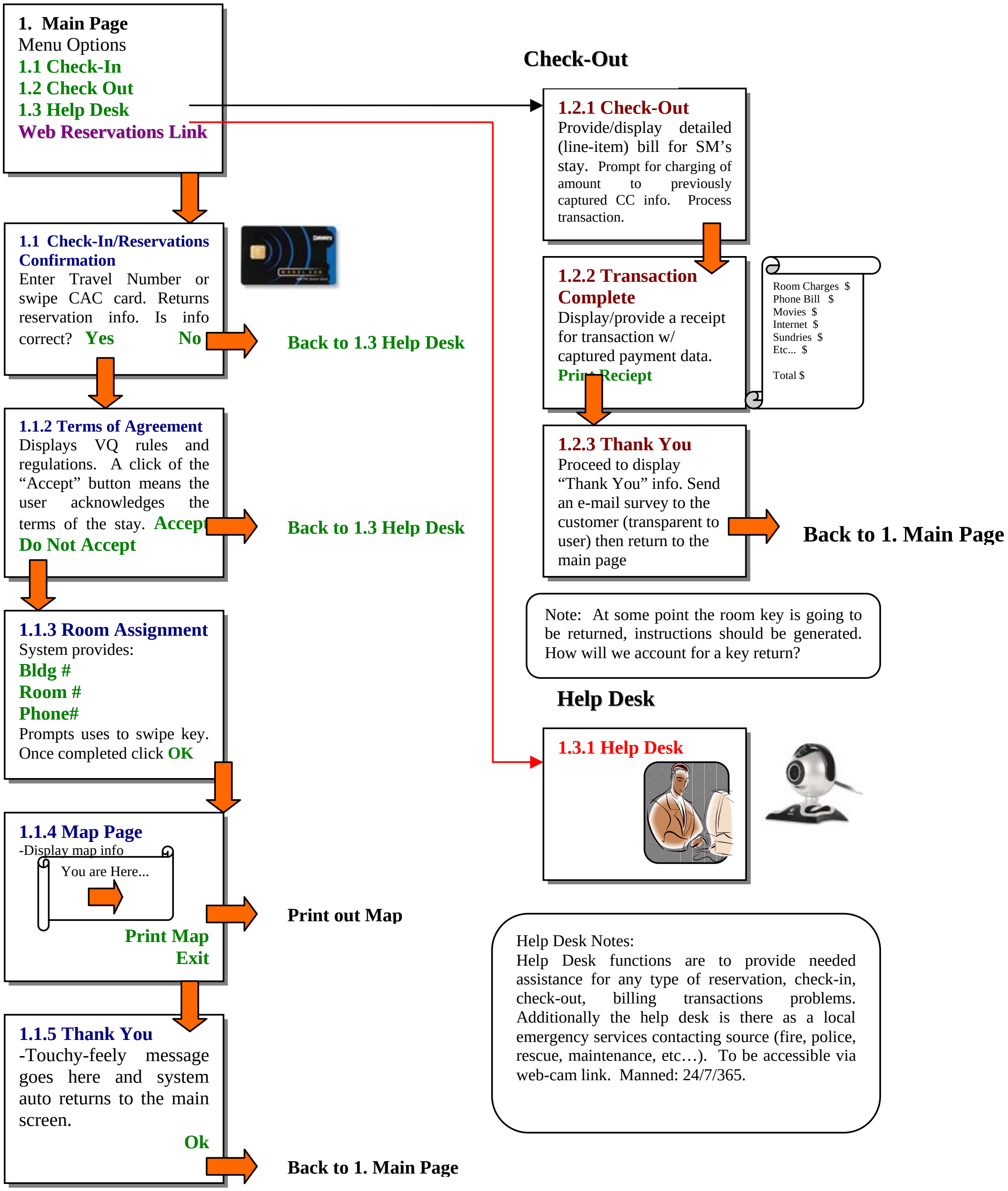
[34] Slide excerpts from Commander Navy Region Northwest, E-Business Transformation Solution for Bachelor &Transient Housing Management, MS PowerPoint file: CNRNW Transformation Brief 22Sep03, A. Abdullah

After the creation of our initial prototype, we incurred a developmental change of direction that forced us to abandon our initial prototype. Our research of the existing infrastructure led us to believe that pursuing this course of action would require a substantial investment on behalf of our client in order to obtain support and maintenance for the Oracle 9iAS platform; hence our initial effort was terminated. However, before the termination of the initial prototype it was demonstrated that our goals of creating a web-based portal with a supporting kiosk solution, and the integration of existing technology could be achieved in a very short timeframe utilizing RAD and Rapid Prototyping methods.

While our initial prototype life cycle was short, it provided us with valuable requirements extraction experience that would aid us in our new approach. Our new direction allowed us to focus our efforts on application development that promoted the use of open architectures and industry standards in web-based programming languages. This would allow our coding to be easily duplicated or modified for continued life cycle enhancements by any developer or vendor. With the initial background we just provided as a baseline for our new direction, we took our approach back to "Day 1" and began to re-apply our researched methods and lessons learned on prototyping and RAD methodologies.   The following details our approach:

With a generic list of requirements in hand, along with the guidance and input of our SMEs and of our professional team members (data architects, programmers, and service professionals), our team began to re-initiate our efforts by group "brainstorming" and developing simple storyboards of the desired system flows of both the web-enabled reservations system and the Kiosk; utilizing a structured incremental approach for design, and by increasing the complexity of detail in each subsequent design iteration. Figure 9 & Figure 10, respectively, illustrate a detailed storyboard of the Kiosk and Web-Enabled Reservations System.

Kiosk System



Check-Out

Help Desk

1. Main Page
Menu Options
1.1 Check-In
1.2 Check Out
1.3 Help Desk
Web Reservations Link

1.1 Check-In/Reservations Confirmation
Enter Travel Number or swipe CAC card. Returns reservation info. Is info correct? **Yes** **No**

Back to 1.3 Help Desk

1.1.2 Terms of Agreement
Displays VQ rules and regulations. A click of the "Accept" button means the user acknowledges the terms of the stay. **Accept** **Do Not Accept**

Back to 1.3 Help Desk

1.1.3 Room Assignment
System provides:
Bldg #
Room #
Phone#
Prompts uses to swipe key. Once completed click **OK**

1.1.4 Map Page
-Display map info
You are Here...
Print Map
Exit

Print out Map

1.1.5 Thank You
-Touchy-feely message goes here and system auto returns to the main screen.
Ok

Back to 1. Main Page

1.2.1 Check-Out
Provide/display detailed (line-item) bill for SM's stay. Prompt for charging of amount to previously captured CC info. Process transaction.

1.2.2 Transaction Complete
Display/provide a receipt for transaction w/ captured payment data.
Print Reciept

Room Charges $
Phone Bill $
Movies $
Internet $
Sundries $
Etc... $

Total $

1.2.3 Thank You
Proceed to display "Thank You" info. Send an e-mail survey to the customer (transparent to user) then return to the main page

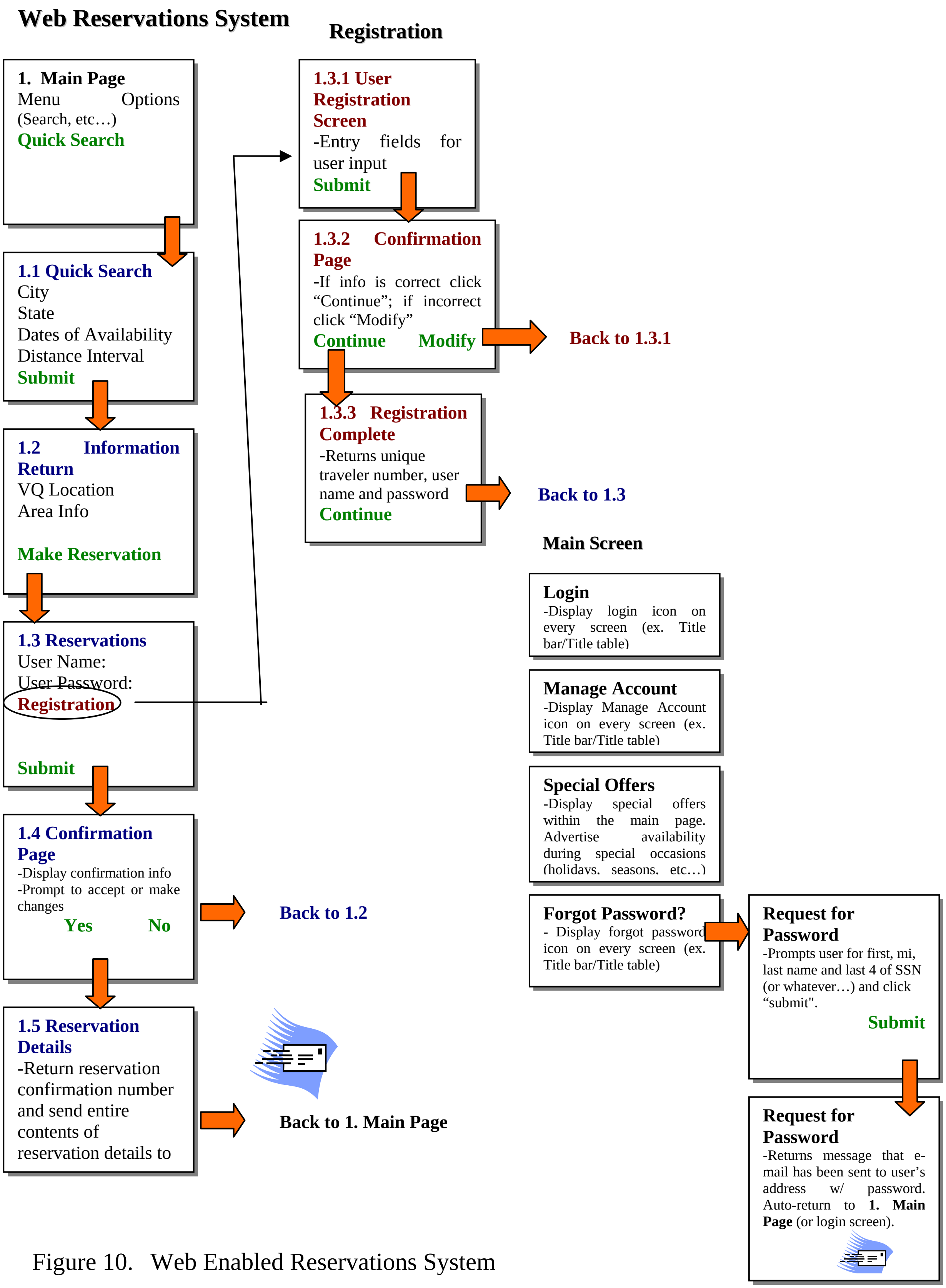
Back to 1. Main Page

Note: At some point the room key is going to be returned, instructions should be generated. How will we account for a key return?

1.3.1 Help Desk

Help Desk Notes:
Help Desk functions are to provide needed assistance for any type of reservation, check-in, check-out, billing transactions problems. Additionally the help desk is there as a local emergency services contacting source (fire, police, rescue, maintenance, etc…). To be accessible via web-cam link. Manned: 24/7/365.

Figure 9. Kiosk System



Web Reservations System

1. Main Page
Menu Options
(Search, etc…)
Quick Search

1.1 Quick Search
City
State
Dates of Availability
Distance Interval
Submit

1.2 Information Return
VQ Location
Area Info

Make Reservation

1.3 Reservations
User Name:
User Password:
Registration

Submit

1.4 Confirmation Page
-Display confirmation info
-Prompt to accept or make changes
Yes No

Back to 1.2

1.5 Reservation Details
-Return reservation confirmation number and send entire contents of reservation details to

Back to 1. Main Page

Registration

1.3.1 User Registration Screen
-Entry fields for user input
Submit

1.3.2 Confirmation Page
-If info is correct click “Continue”; if incorrect click “Modify”
Continue Modify

Back to 1.3.1

1.3.3 Registration Complete
-Returns unique traveler number, user name and password
Continue

Back to 1.3

Main Screen

Login
-Display login icon on every screen (ex. Title bar/Title table)

Manage Account
-Display Manage Account icon on every screen (ex. Title bar/Title table)

Special Offers
-Display special offers within the main page. Advertise availability during special occasions (holidays, seasons, etc…)

Forgot Password?
- Display forgot password icon on every screen (ex. Title bar/Title table)

Request for Password
-Prompts user for first, mi, last name and last 4 of SSN (or whatever…) and click “submit".
Submit

Request for Password
-Returns message that e-mail has been sent to user’s address w/ password. Auto-return to **1. Main Page** (or login screen).

Figure 10. Web Enabled Reservations System

The following provides a brief description of the purpose behind the web design layout/navigation of the Bachelor Housing Solution:

- The first design navigation, the Kiosk Main Page (homepage: Index.asp) content is intended to simulate the functionality of Express Check-In/Check-Out functions similar to those employed throughout various customer service oriented operations (airports, car rental orgs, etc…). The Kiosk is designed to directly interface with the same database (DB) as the Web-Based Reservations System so that a customer can enter his/her reservation confirmation number and pull their reservation information at that Kiosk terminal. The Kiosk terminal also allows for internet access so the customer can make additional reservations at any time.
- The second design layout/navigation is for the Bachelor Quarters Web-based Reservations System. The reservations system is the portal for customers/service members who desire accommodations at any of the Navy's Quarters locations. Functions include: Registration, Account Management, Search functions, making/deleting/modification of reservations, FAQs and contact information).

Currently the site is still under development as most of the pages have been created and tied to the Access DB with basic functionality for future iteration and development with end users. The Access DB files have been modified to alleviate the data formatting hurdles we had to overcome with transferring text vice numerical values in our SQL queries.

Utilizing the respective storyboards we were able to derive the basic objects (or actors if UML terminology is preferred) and their basic interactions both with and within the system. By incorporating those objects in a rudimentary Entity-Relationship (ER) Diagram (Figure 3.3), we were able to extract the main elements for the creation of both our table elements for our database design (see Figure 3.4 for the Bachelor Housing MS Access Relationship Diagram), and the system boundaries and "actors" (Appendix B) for our Unified modeling Language (UML) Use Case scenarios (Appendix C). These steps

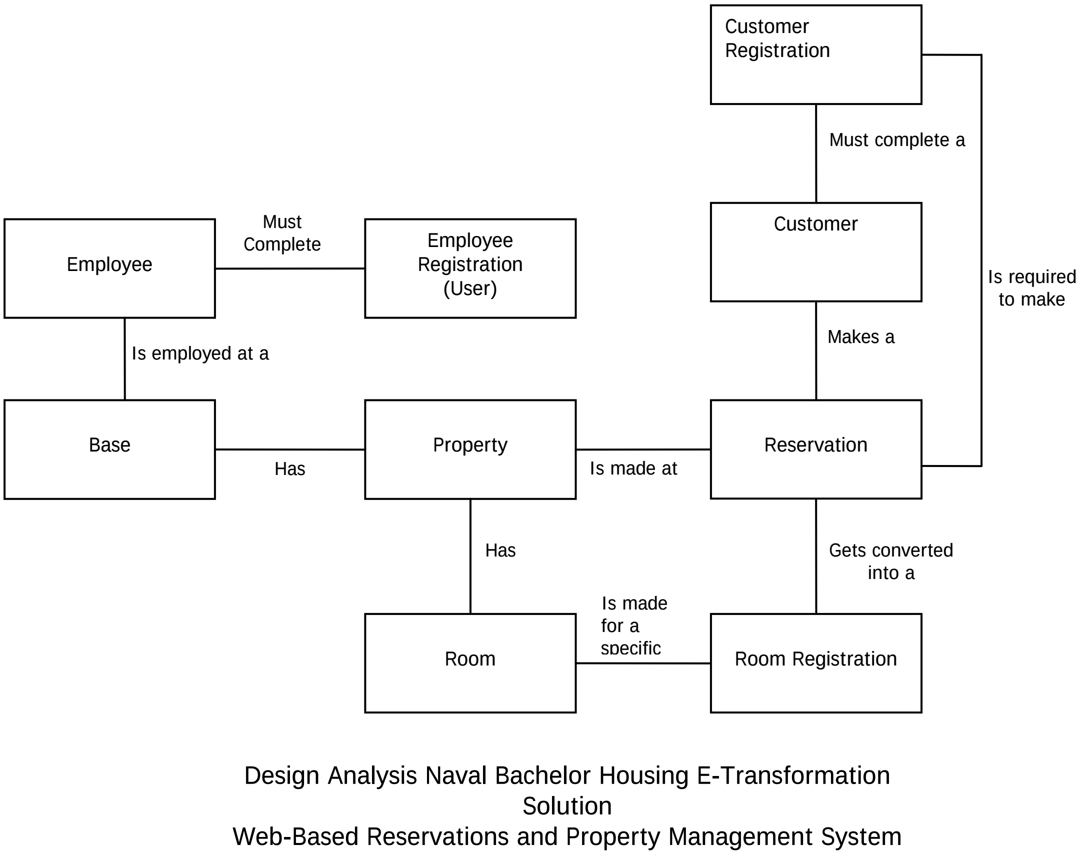


Figure 11. Initial Entity-Relationship Diagram for Bachelor Housing Transformation Solution

aided in the extraction of the detailed requirements for coding the prototype (Appendix D).

Once we completed our data structure we conducted a parallel iterative design and development path for both the Kiosk and Web-Reservations modules. Our prototype was created in the Macromedia Dreamweaver MX 2004 web-development environment using a combination of Microsoft Active Server Pages (ASP) and JavaScript programming, with Structured Query Language (SQL) for the interaction between the designed web interface and the Microsoft Access DB. The definition of the system actors followed by a fully dressed use case for the Kiosk Check-In Scenario is provided. Screenshots of the Kiosk are illustrated in the images, with detailed steps are provided thereafter.

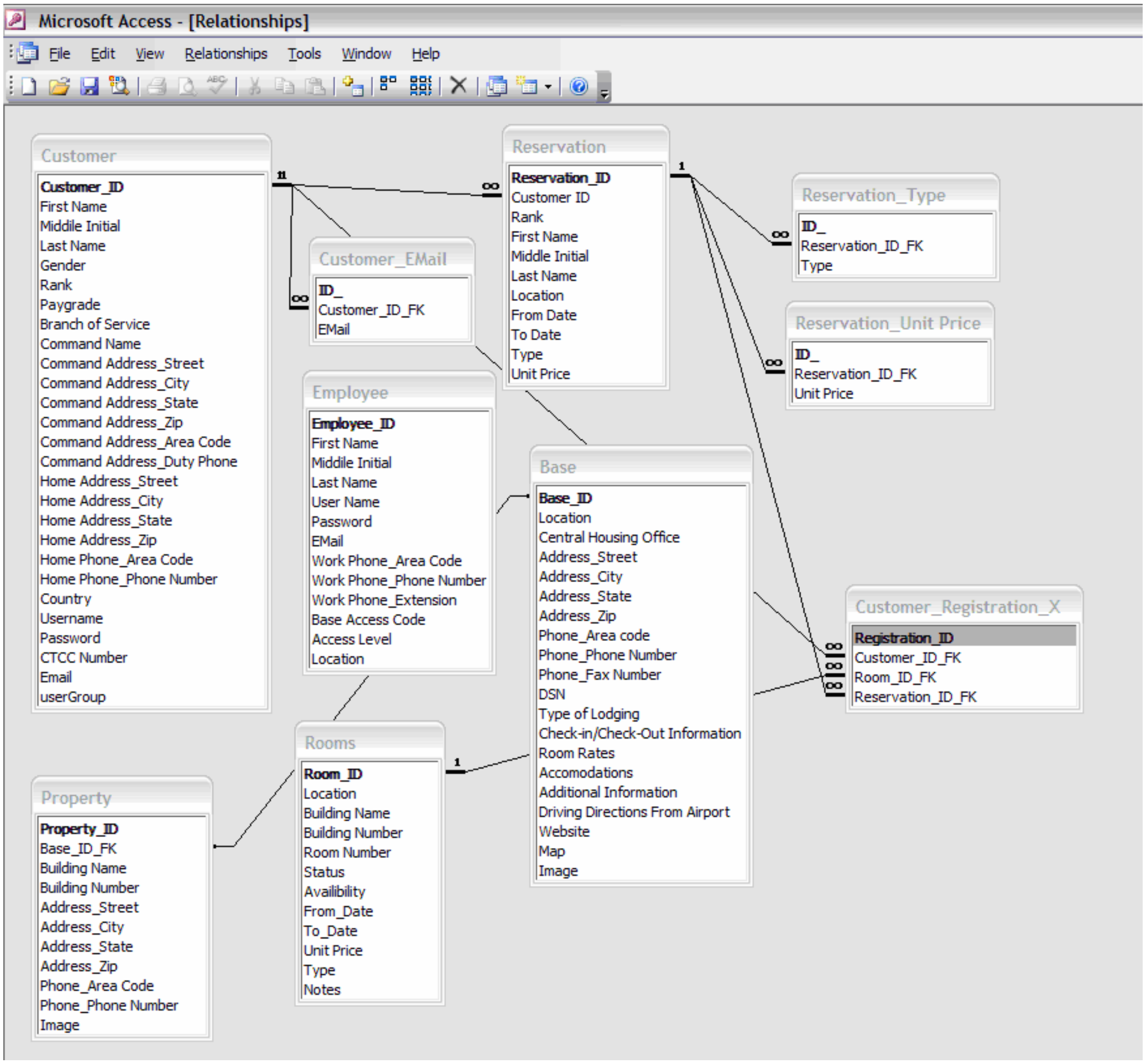


Figure 12. Design Analysis: Naval Bachelor Housing Web-Based, Kiosk-Enabled, Central Reservations System BACHELORHOUSING Relational Database

Use Case Definitions

Actors: a role that a user plays with respect to the system (Actors carry out use cases); it has a specific behavior (for ex. can be a person, a computer system, or an organization).

Primary Actors: Primary actors have goals that are fulfilled through using services of the system…they call upon the system to help them.

Guest: By simple definition, our "Guest" is a customer; for our purposes the customer will be any active duty service member who is considered a frequent traveler by the Department of Defense (DoD) travel regulations and possess a Government Travel Credit Card (GTCC) for official travel purposes only.

Visitors Quarters Front Desk Operator: Any Employee of the Naval Bachelor Quarters staff that provides services and support for Guest in all manner of things pertaining to reservations, check-in/check-out and general customer assistance. (Employees include: All levels of Management, Supervisors, and Front Desk Clerks)

Help Desk: Any Employee of the Naval Bachelor Quarters staff that provides the same services and support as the Visitor Quarters front Desk Operator, but is also a highly-trained, technical systems expert that specializes in troubleshooting and problem resolution methods.

Primary Actor Goals:

Guest: Wants a process that provides them with a customer service oriented, user-friendly, highly-efficient and expedient reservations and Quarter's check-in/out system.

Visitors Quarters Front Desk Operator: To provide the guest with a pleasing customer service and lodging experience that not only enhances the stay of the Guest, but also enhances the appeal for Guest to want to utilize the Visitor Quarters in the future for both official and leave and liberty travel.

Help Desk: To provide the Guest with the most expedient customer service and problem resolution possible.

Supporting Actors Defined: Provide services to the system under design

Use Case UC1: Kiosk Check-In

Primary Actor: Guest (Service member)

Stakeholders and Interest:

-Guest: Wants a fast, uncomplicated and user-friendly check-in process.

-Visitors Quarters Front Desk Operator: Wants to be able to provide the Guest with superior service by offering a fast, easy, error-free check-in process. Additionally they want to be able to accurately record and track all user transactions in order to facilitate all operations related to guest history, operations management and financial transaction functions.

-Regional Help Desk: Wants to be able to provide the Guest with immediate problem resolution should a system related problem arise or override transaction be required for Guest check-in.

Help Desk provides necessary assistance with full functionality of system overrides and access.

Help Desk functions are to provide needed assistance for any type of reservation, check-in, check-out, billing transactions problems. Additionally the help desk is there as a local emergency services contacting source (i.e. fire, police, rescue, maintenance, etc…). Help Desk is to be accessible via a web-cam link and is manned: 24 hours a day, everyday.

Preconditions:

Kiosk, Web Enabled Reservations and Property Management Systems are fully functional. The service member (Guest) must have already completed the reservations process through the web-enabled reservation system and received confirmation of that reservation.

Success Guarantee (Postconditions): A successful check-in transaction has occurred, was recorded and updated in the Visitors Quarters' Property Management System. The Guest has received his/her room assignment, room key and map.

Main Success Scenario (or Basic Flow):

1. User enters Reservation Confirmation Number. (Alternative experimental method for Guest authentication is the use of the Common Access Card (CAC) to verify user identity)*
2. System retrieves and displays reservation information from system database.
3. System prompts Guest to verify correct information.
4. Guest verifies correct information and selects "Continue" to continue transaction.
5. System displays visiting quarters "Terms of Agreement" Form (The Terms of Agreement are the rules and regulations of Guest stay in all Visitors Quarters, a

mandatory acknowledgement of said agreement is required to complete the check-in process) and awaits Guest acknowledgement.

6. Guest acknowledges receipt and understanding of the “Terms of Agreement” by clicking “I Accept”.
7. System retrieves and displays Guest “Room Assignment” information and prompts user to swipe room key, once key is encoded the system will verify the process is complete and prompt the user to click “OK”.
8. System will then display a map of the quarters (room) location (the Guest has the option to print out the map, if the Guest clicks “Print Room & Map Information” the system will then print out the displayed room and map information.
9. Guest exits the system by clicking on the “Exit” function.
10. System displays a “Thank You” message and defaults to the main welcome screen.

Extensions (or Alternative Flows):

*If at any time there is a catastrophic system failure:

11. The Kiosk will default to the “Help Desk” Screen or display a “Temporarily-Out-of-Service” message.
12. System technician(s) will be notified of system status and troubleshoot in order to determine and correct the problematic nature of discrepancy.
13. Upon correction of discrepancy the technician(s) will reboot system. And return it to its normal operating status.

1a. Invalid or incorrect Reservation Confirmation Number is entered:

1. Guest will be prompted to re-enter his/her Reservation Confirmation Number.
2. If Reservation Confirmation Number is not validated after a few attempts, the Guest will be directed to the “Help Desk” for further assistance.
3. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 5) and completion of the check-in process.
4. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
5. The system will default to the main welcome screen.

2a. System cannot retrieve reservation information from the database:

1. The system will return a message indicating the information cannot be found.
2. The Guest will then be directed to the “Help Desk” for further assistance.
3. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 5) and completion of the check-in process.
4. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.

5. The system will default to the main welcome screen.

4a. Guest verifies information is not correct and selects “No” to continue transaction.

1. The Guest will then be directed to the “Help Desk” for further assistance.
2. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 5) and completion of the check-in process.
3. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
4. The system will default to the main welcome screen.

6a. Guest acknowledges receipt and understanding of the “Terms of Agreement” by clicking “Do Not Accept.”

1. The Guest will be directed to the “Help Desk” for resolution (if resolution is achieved skip to step 3) and completion of the check-in process.
2. If resolution is not achieved, the Help Desk will direct the Guest to the Front Desk for further assistance.
3. The system will default to the main welcome screen.
4. 7a. System does not retrieve and displays Guest “Room Assignment” information.
5. Guest should immediately contact the “Help Desk” for assistance.
6. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 4) and completion of the check-in process.
7. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
8. The system will default to the main welcome screen

7b. System prompts user to swipe room key, but fails in the encoding process. Guest should immediately contact the “Help Desk” for assistance.

1. The Guest should immediately contact the “Help Desk” for resolution.
2. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 4) and completion of the check-in process.
3. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
4. The system will default to the main welcome screen

8a. The System fails to display and or print the map of the quarters (room).

1. The user can either contact the “Help Desk” for resolution of the problem (if resolution is achieved skip to step 3) and completion of the check-in process.
2. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.

3. The system will default to the main welcome screen

Special Requirements:

-Touch screen Graphic User Interface (GUI) on large flat-panel monitor. Text and buttons must be adequately formatted to allow for easy viewing and error free touch-screen operation.

-Keyboard with Card Reader functionality (for use of CAC for Guest validation) and mouse is required for data entry/Guest input.

-Need to be able to incorporate a self diagnostic function to alert Front Desk when system is not operating within normal parameters or is non-functional.

-Kiosk needs to be configured with a Key Dispenser (and receptacle)/Key Encoder.

-Kiosk needs to be configured with Web-Cam and internet capability for Help Desk communications. The System displays detailed Web-Cam screen and connection mechanism for initiating live communications for the Help Desk.

Technology and Data Variations List:

N/A

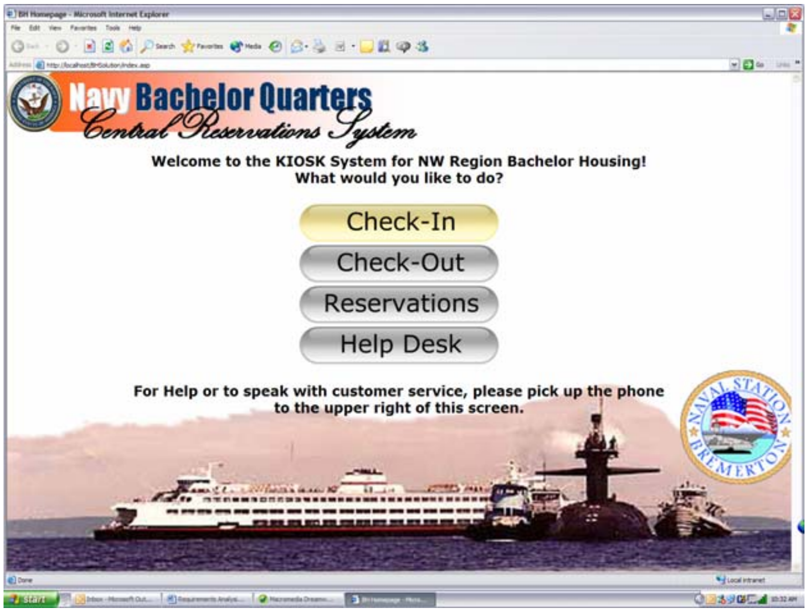
Frequency of Occurrence:

Kiosk operation should be continuous.

Open Issues:

-Explore credit card transactions and authorizations at Kiosk.

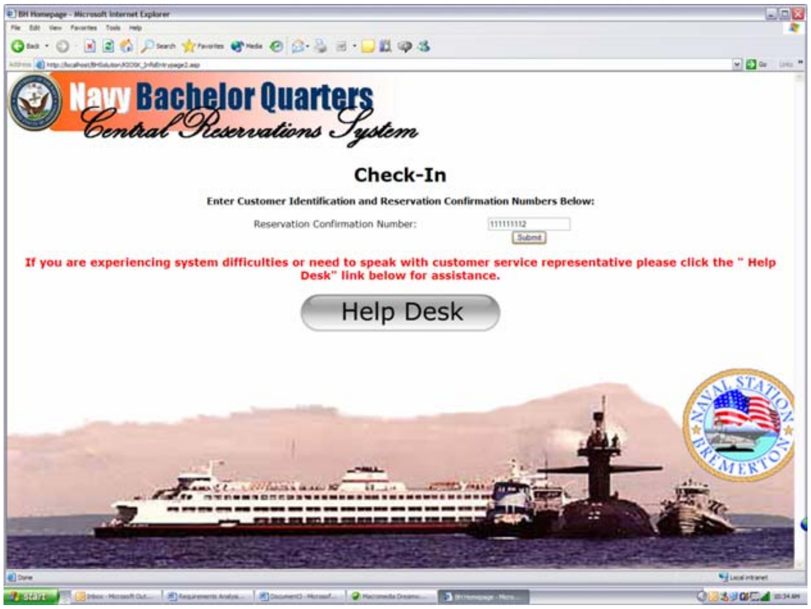
Kiosk Screenshots for UC1: Guest Check In



Welcome to the KIOSK System for NW Region Bachelor Housing!
What would you like to do?

For Help or to speak with customer service, please pick up the phone to the upper right of this screen.

This is a display of the Kiosk main screen awaiting user interaction/input for guest Check-In.


BH Homepage - Microsoft Internet Explorer
Navy Bachelor Quarters
Central Reservations System
Submit
Help Desk
NAVAL STATION BREMERTON

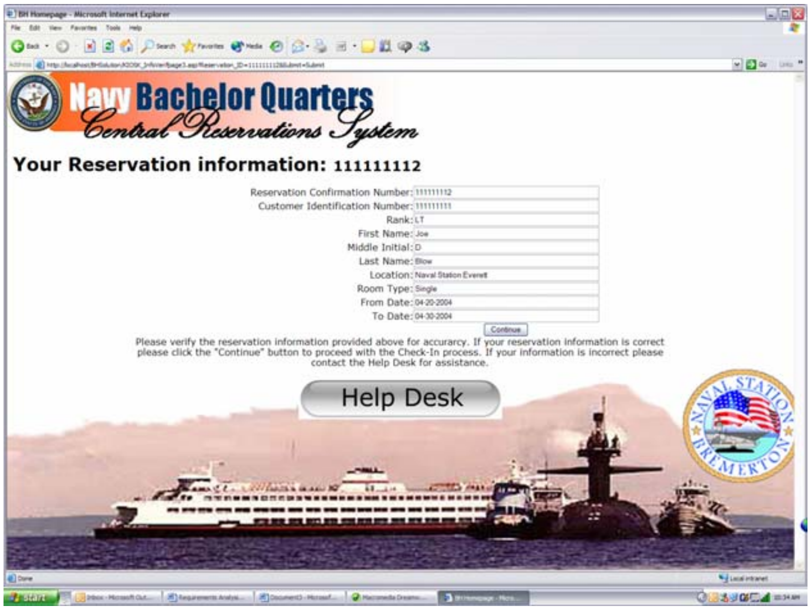
Check-In

Enter Customer Identification and Reservation Confirmation Numbers Below:

Reservation Confirmation Number: 111111112

If you are experiencing system difficulties or need to speak with customer service representative please click the " Help Desk" link below for assistance.

1. User enters Reservation Confirmation Number. (Alternative experimental method for Guest authentication is the use of the Common Access Card (CAC) to verify user identity)*


BH Homepage - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Navy Bachelor Quarters
Central Reservations System

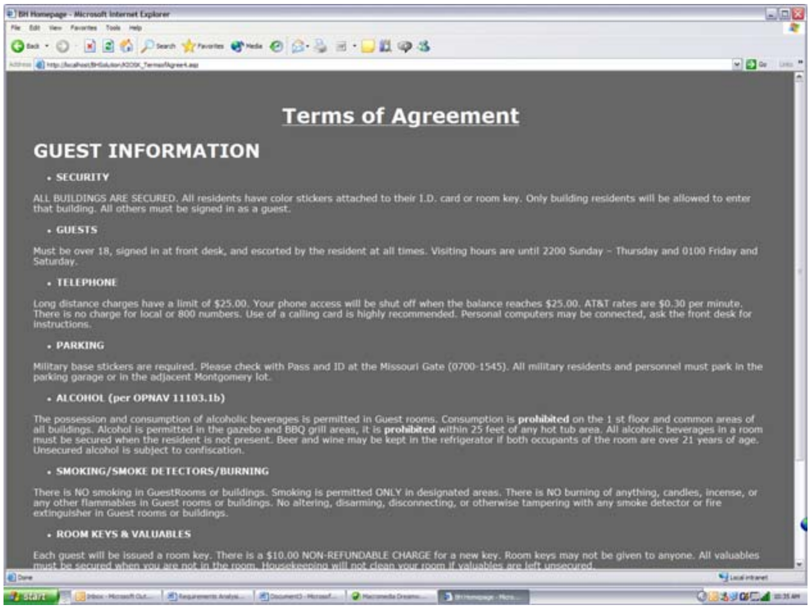
Your Reservation information: 111111112

Reservation Confirmation Number:	111111112
Customer Identification Number:	111111111
Rank:	LT
First Name:	Joe
Middle Initial:	D
Last Name:	Blow
Location:	Naval Station Everett
Room Type:	Single
From Date:	04-20-2004
To Date:	04-30-2004

Continue

Please verify the reservation information provided above for accurarcy. If your reservation information is correct please click the "Continue" button to proceed with the Check-In process. If your information is incorrect please contact the Help Desk for assistance.

2. System retrieves and displays reservation information from system database.
3. System prompts Guest to verify correct information.
4. Guest verifies correct information and selects "Continue" to continue transaction.


BH Homepage - Microsoft Internet Explorer
File Edit View Favorites Tools Help

Terms of Agreement

GUEST INFORMATION

- SECURITY

ALL BUILDINGS ARE SECURED. All residents have color stickers attached to their I.D. card or room key. Only building residents will be allowed to enter that building. All others must be signed in as a guest.

- GUESTS

Must be over 18, signed in at front desk, and escorted by the resident at all times. Visiting hours are until 2200 Sunday – Thursday and 0100 Friday and Saturday.

- TELEPHONE

Long distance charges have a limit of $25.00. Your phone access will be shut off when the balance reaches $25.00. AT&T rates are $0.30 per minute. There is no charge for local or 800 numbers. Use of a calling card is highly recommended. Personal computers may be connected, ask the front desk for instructions.

- PARKING

Military base stickers are required. Please check with Pass and ID at the Missouri Gate (0700-1545). All military residents and personnel must park in the parking garage or in the adjacent Montgomery lot.

- ALCOHOL (per OPNAV 11103.1b)

The possession and consumption of alcoholic beverages is permitted in Guest rooms. Consumption is **prohibited** on the 1 st floor and common areas of all buildings. Alcohol is permitted in the gazebo and BBQ grill areas, it is **prohibited** within 25 feet of any hot tub area. All alcoholic beverages in a room must be secured when the resident is not present. Beer and wine may be kept in the refrigerator if both occupants of the room are over 21 years of age. Unsecured alcohol is subject to confiscation.

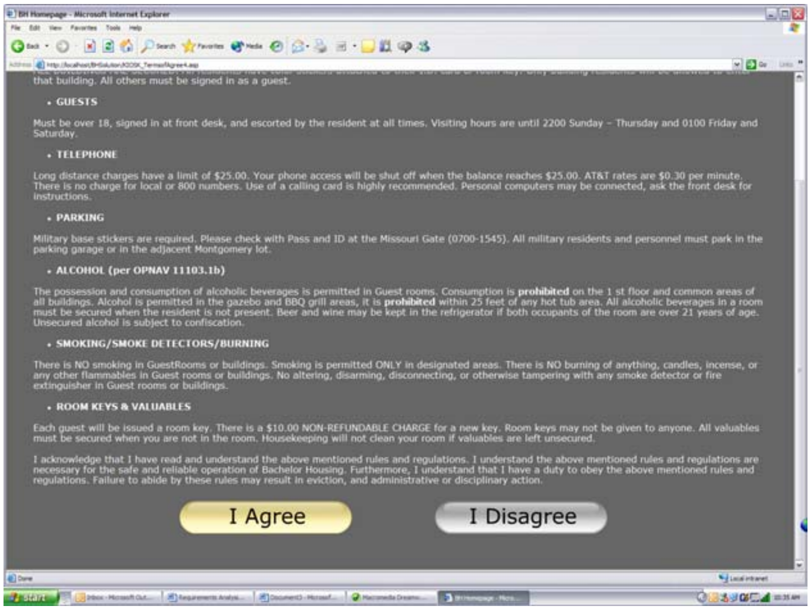
- SMOKING/SMOKE DETECTORS/BURNING

There is NO smoking in GuestRooms or buildings. Smoking is permitted ONLY in designated areas. There is NO burning of anything, candles, incense, or any other flammables in Guest rooms or buildings. No altering, disarming, disconnecting, or otherwise tampering with any smoke detector or fire extinguisher in Guest rooms or buildings.

- ROOM KEYS & VALUABLES

Each guest will be issued a room key. There is a $10.00 NON-REFUNDABLE CHARGE for a new key. Room keys may not be given to anyone. All valuables must be secured when you are not in the room. Housekeeping will not clean your room if valuables are left unsecured.

5. System displays visiting quarters "Terms of Agreement" Form (The Terms of Agreement are the rules and regulations of Guest stay in all Visitors Quarters, a mandatory acknowledgement of said agreement is required to complete the check-in process) and awaits Guest acknowledgement.



that building. All others must be signed in as a guest.

- **GUESTS**

Must be over 18, signed in at front desk, and escorted by the resident at all times. Visiting hours are until 2200 Sunday – Thursday and 0100 Friday and Saturday.

- **TELEPHONE**

Long distance charges have a limit of $25.00. Your phone access will be shut off when the balance reaches $25.00. AT&T rates are $0.30 per minute. There is no charge for local or 800 numbers. Use of a calling card is highly recommended. Personal computers may be connected, ask the front desk for instructions.

- **PARKING**

Military base stickers are required. Please check with Pass and ID at the Missouri Gate (0700-1545). All military residents and personnel must park in the parking garage or in the adjacent Montgomery lot.

- **ALCOHOL (per OPNAV 11103.1b)**

The possession and consumption of alcoholic beverages is permitted in Guest rooms. Consumption is **prohibited** on the 1 st floor and common areas of all buildings. Alcohol is permitted in the gazebo and BBQ grill areas, it is **prohibited** within 25 feet of any hot tub area. All alcoholic beverages in a room must be secured when the resident is not present. Beer and wine may be kept in the refrigerator if both occupants of the room are over 21 years of age. Unsecured alcohol is subject to confiscation.

- **SMOKING/SMOKE DETECTORS/BURNING**

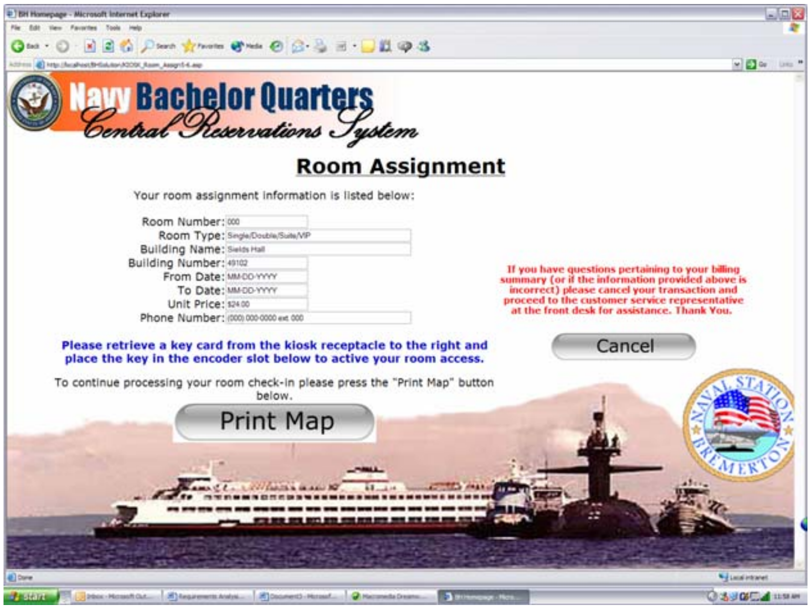
There is NO smoking in GuestRooms or buildings. Smoking is permitted ONLY in designated areas. There is NO burning of anything, candles, incense, or any other flammables in Guest rooms or buildings. No altering, disarming, disconnecting, or otherwise tampering with any smoke detector or fire extinguisher in Guest rooms or buildings.

- **ROOM KEYS & VALUABLES**

Each guest will be issued a room key. There is a $10.00 NON-REFUNDABLE CHARGE for a new key. Room keys may not be given to anyone. All valuables must be secured when you are not in the room. Housekeeping will not clean your room if valuables are left unsecured.

I acknowledge that I have read and understand the above mentioned rules and regulations. I understand the above mentioned rules and regulations are necessary for the safe and reliable operation of Bachelor Housing. Furthermore, I understand that I have a duty to obey the above mentioned rules and regulations. Failure to abide by these rules may result in eviction, and administrative or disciplinary action.

6. Guest acknowledges receipt and understanding of the “Terms of Agreement” by clicking “I Accept”.


BH Homepage - Microsoft Internet Explorer
Navy Bachelor Quarters
Central Reservations System
Cancel
Print Map
NAVAL STATION BREMERTON

Room Assignment

Your room assignment information is listed below:

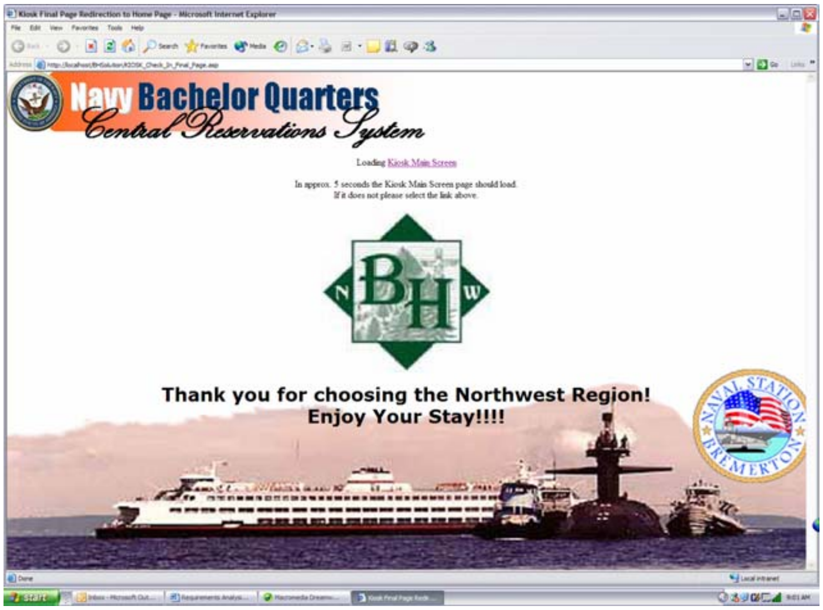
Room Number:	000
Room Type:	Single/Double/Suite/VIP
Building Name:	Sields Hall
Building Number:	49102
From Date:	MM-DD-YYYY
To Date:	MM-DD-YYYY
Unit Price:	$24.00
Phone Number:	(000) 000-0000 ext. 000

If you have questions pertaining to your billing summary (or if the information provided above is incorrect) please cancel your transaction and proceed to the customer service representative at the front desk for assistance. Thank You.

Please retrieve a key card from the kiosk receptacle to the right and place the key in the encoder slot below to active your room access.

To continue processing your room check-in please press the "Print Map" button below.

7. System retrieves and displays Guest “Room Assignment” information and prompts user to swipe room key, once key is encoded the system will verify the process is complete and prompt the user to click “OK”.
8. System will then display a map of the quarters (room) location (the Guest has the option to print out the map, if the Guest clicks “Print Room & Map Information” the system will then print out the displayed room and map information.


Kiosk Final Page Redirection to Home Page - Microsoft Internet Explorer

http://localhost/BHSolution/KIOSK_Check_In_Final_Page.asp

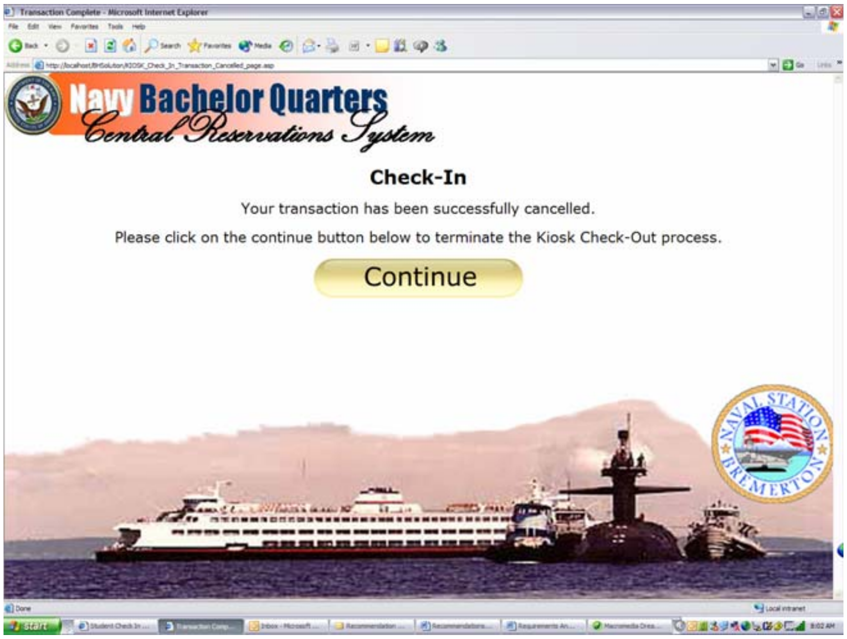
Navy Bachelor Quarters
Central Reservations System

Loading Kiosk Main Screen

In approx. 5 seconds the Kiosk Main Screen page should load.
If it does not please select the link above.

Thank you for choosing the Northwest Region!
Enjoy Your Stay!!!!

9. Guest exits the system by clicking on the “Exit” function.
10. System displays a “Thank You” message and defaults to the main welcome screen.


Transaction Complete - Microsoft Internet Explorer

http://localhost/BHSolution/KIOSK_Check_In_Transaction_Cancelled_page.asp

Navy Bachelor Quarters
Central Reservations System

Check-In

Your transaction has been successfully cancelled.

Please click on the continue button below to terminate the Kiosk Check-Out process.

*Alternate Flow in instance of user cancellation during Check-In process.

In addition to our development of the Kiosk and Web-Based applications our initiative also included the experimentation with various technologies in order to demonstrate the hardware interactions of the system. Our test equipment was to simulate via networked computers, a touch screen monitor, and web-cam connections the Guest-Kiosk-Web reservations and Help Desk interactions. The initial testing of our proposed system was to include the testing of access card interactions with the system using 3rd Generation Common Access Card (CAC) technology as illustrated below:

Model 330g Smart Card GSC-IS Compatible Smart Card

The Model 330g smart card is Datakey's file-system smart card. The "g" designation signifies ***GSC-IS compatibility*** – which means that the Model 330g smart card meets the GSC-IS native card-edge interface requirements. The GSC-IS smart card interoperability specification ensures "any card, any software" operation. All current and future GSA applications will interoperate with any card adhering to the GSC-IS specification. For agencies or organizations within the GSA Smart Access Common ID Card program, this means the Model 330g smart card will seamlessly and directly plug-and-play with their applications.

Features:

- ISO-compliant (7816) smart card format
- Validated for FIPS 140-1 Level 2
- Cryptographic co-processor for improved performance and speed
- DKCCOS smart card operating system in 32K ROM
- 32K EEPROM for secure storage of keys, passwords, certificates and data
- On-board DES hardware co-processor for secret-key encryption
- Implements public key functions:
    - RSA/DSA key generation
    - RSA for digital signature
    - DSA for digital signature
    - RSA key exchange
    - Diffie-Hellman key exchange
    - SHA-1

  - MD5
  - ECDSA for digital signature (optional capability)
  - ECC key generation (optional capability)
- Hardware and software protection against differential power attacks and timing attacks
- GSA compatible to meet the GSA's card-edge interoperability specifications

The Datakey Model 330g smart card works on any Windows 95 or higher workstation, together with Datakey CIP client software and a Datakey serial, USB or PCMCIA reader, or with PC/SC compliant smart card readers.

Datakey Smart Card Readers

Datakey provides enterprise customers with a choice of reader options that allow them to easily use Datakey smart cards with PC workstations or laptop computers. Datakey smart card readers connect to a user's available serial port, USB port or PCMCIA slot. Enterprises typically take advantage of multiple Datakey smart card reader options to meet the diverse needs of their workforces – deploying serial port readers or USB readers for employees that work at a desktop computer and PCMCIA readers for mobile employees with laptop computers, for example.

All readers provided by Datakey have been tested to work with the most recent model of Datakey smart cards, so set-up is fast, convenient and proven.[35] The following images reflect some of our testing of the application and the hardware interfaces:

[35] Model 330g Smart Card and Smart Card Reader information accessed from Datakey website: http://datakey.com/

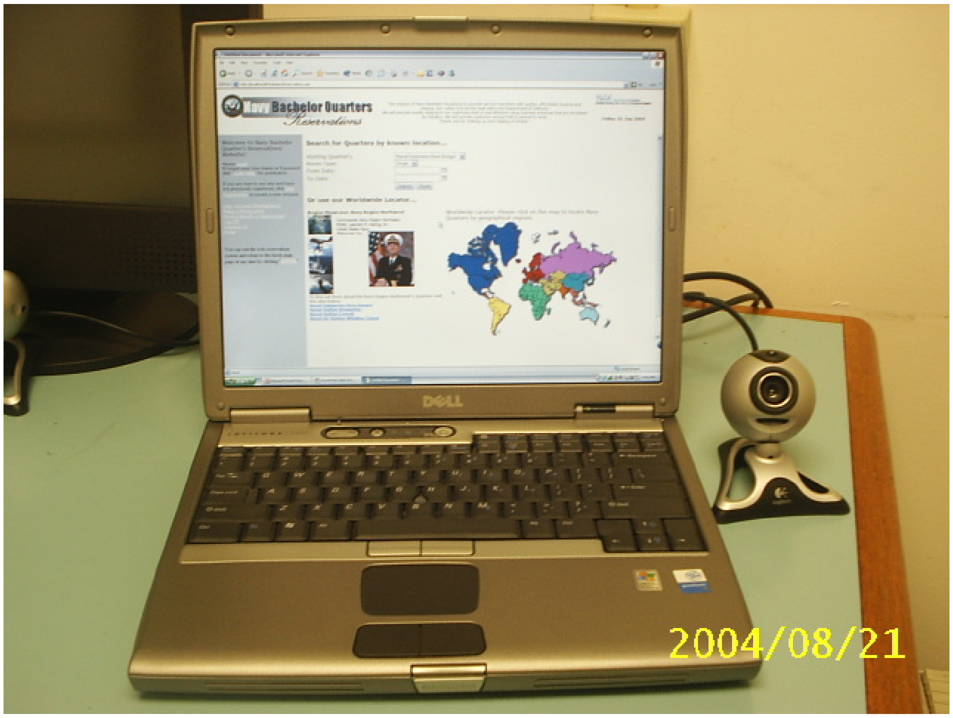
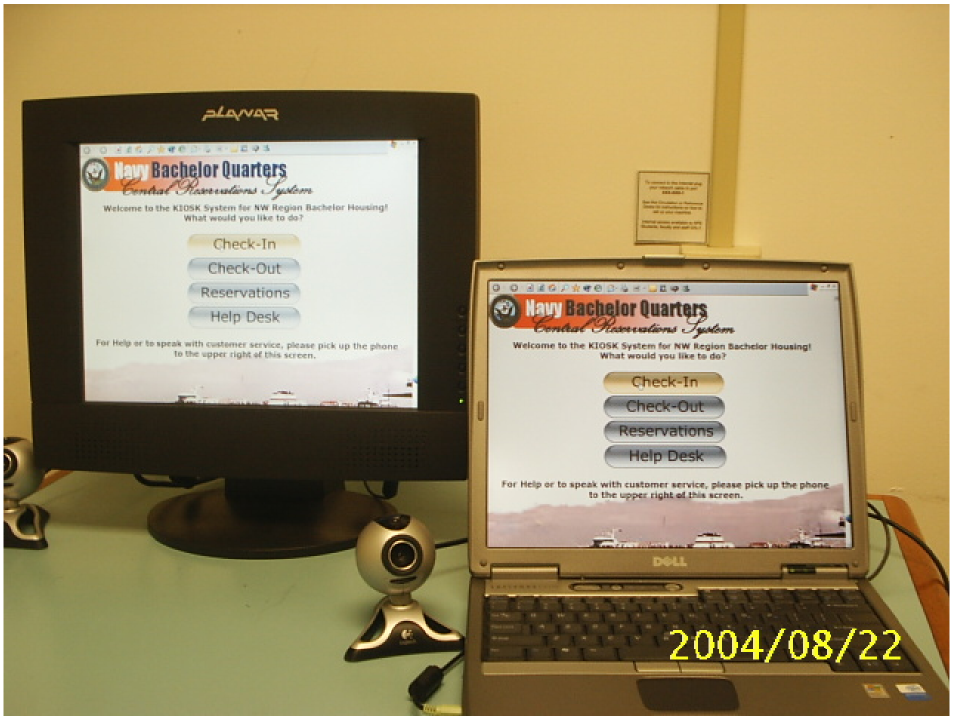


Figure 13. Image of Bachelor Housing Web Reservations System portal



Welcome to the KIOSK System for NW Region Bachelor Housing!
What would you like to do?

For Help or to speak with customer service, please pick up the phone to the upper right of this screen.

Figure 14. Image of Kiosk Main Screen

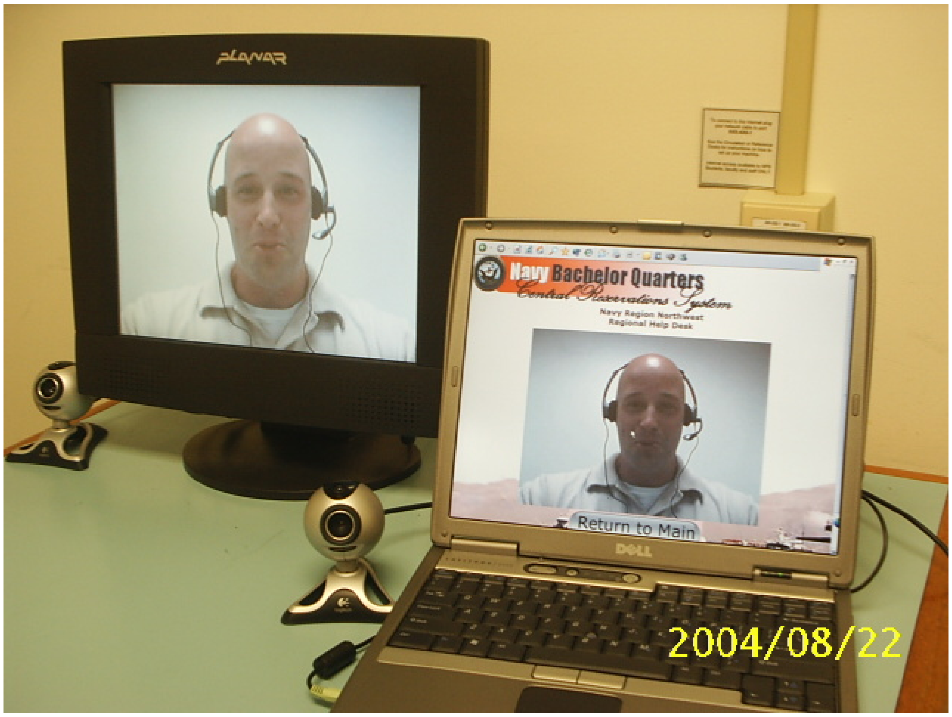


Figure 15. Image of Kiosk and Touch Screen views of Help Desk interaction

The images provided reflect the concerted effort of a team of dedicated individuals who have had various experience (on both ends of the spectrum) in management and operations, technical and data architecture analysis, applications and systems development methodologies, programming and consulting. The effective application of practices that reflect the industry's best in Prototyping, RAD methodologies and Research Analysis that was instrumental in the development and progression of our application. While the continued development of our application into a full production level system was the ultimate goal, time, funding and bureaucratic constraints only allowed us to reach the end of the development cycle for the first iteration with our end users. Our project limitations will be further elaborated on in a subsequent chapter.

E. STAKEHOLDER INVOLVEMENT

Throughout the course of the initiative we were fortunate enough to be able to draw upon the counsel, advice and experience of professionals in industry, academia and the Subject Matter Experts of the Sheltering/Family Housing. Below is a list of our professional partners and their involvement in the initiative:

CNRNW Team:

- Rear Admiral L. R. Hering, USN; Commander NRNW, Sponsor
- Lieutenant Commander Robert Skjonsby, USN, NRNW Business Office, Coordinator, Advisor
- Mrs. Jonnie Lambdin, Sheltering Program Manager, Navy Region Northwest, Subject Matter Expert, Advisor
- Mrs. Linda Cruz, Hotel Programs and Operations Manager, Navy Region Northwest, Subject Matter Expert

NPGS Team Composition and Experience:

- Dr. Thomas Housel: Principal Investigator (Program Advisor)
- Dr. Doug Shook: Team Lead (Technical Advisor/Database Architect-Engineer)
- Richard Bergin: Team Lead (Tutorials/Documentation/Interface)
- Eugene Boukarov: Team Lead: (Application Layer/Lead Programmer)
- Captain Aaron Abdullah, USMC, (Project Manager, Analyst, Design and Development, Programming)
- Major Sam Ruble, USMC, (Project Analyst, Design and Development)
- Lieutenant Rob Campbell, USN, (Project Analyst, Design and Development)
- Development and implementation of 12+ production level systems
- Combined professional Information Technology (IT) and Service Industry experience in excess of 100 years

F. WHAT DID WE ACHIEVE?

Throughout the description of the events that transpired during our development process we attempted to illustrate our thought process and actions in a clear, methodical fashion. The tools and techniques employed in our development effort clearly place validity in the benefits of spiral or “iterative” development. The added benefits of RAD flexibility allowed us (as developers) to rapidly adapt to frequent changes in requirements, timelines and scope. The work conducted on this case study consisted of just over one year’s worth of continuous communication, research, requirements analysis and system development work, and evaluation. The direct result of our efforts was the creation of a less than fully functional prototype for 1st iteration use/feedback with the end users. While most 1st iteration prototypes have simple interfaces and demonstrate little to no actual system functionality, we were focused on providing the client with as much detail and functionality as possible to give (both them and us) a clearer and more realistic tool for future detailed assessment and requirements analysis. Our focus was on maximizing the utility of our efforts and improving the results of the limited time we were able to spend with the end users.

While we were unable to complete the 1st iteration of our development cycle with our client (due to scheduling and operational conflicts), we feel that the work provided in this study provides a great measure of requirements analysis towards the creation of the desired production level system that meets not only the needs of our sponsor, but has the potential for generating the vital cost savings for recapitalization efforts of the naval enterprise. To put the level of effort of our design and development of our work (in terms of a software applications development) into perspective, the prototype consists of the design and creation of 48 interactive web pages (which constitute over 5400 lines of combined Active Server Page (ASP) and JavaScript (JSP) programming code, the development of a multitude of graphics, and the incorporation of various images and video content), supported by a small scale relational database.

While we attempted to put into action all of the tools and techniques we discussed earlier in our research context, we found the development of something as simple as an iterative prototype to be no small undertaking. However, in light of the experience and insight we have gained throughout our exploration of the applications development domain, we firmly believe that our approach has firm value for any application or systems development project, and the ability to take a prototype from a mentality of “throw-away” to one of “continued iteration” for production-level system implementation.

IV. RECOMMENDATIONS

A. PROTOTYPING

Too often we hear the adages "hind sight is 20/20" and "there is no substitute for experience." However, after all is said and done the truth of these clichés really hits home. A few points or lessons learned are always helpful for any future work no matter the subject, and software development is certainly no exception.

Cooperation. Any successful project undertaking requires cooperation from the top down. Everyone must be on board, not just the key players. We had excellent cooperation from key players and high-ranking staff officers; however, our problems began with "external business consultants." Our team was completely unfamiliar with these consultants and vital the role they would play in the progression of our system development; thus our underestimation of their importance in the process turned out to be a great handicap. Our greatest problem was mostly due to the lack of communication. Unfortunately, due to our unfamiliarity with one another (along with the absence of clear communication lines) resulted in a lack of trust on the part of the consultants; who perceived their livelihood was at stake if our project was to succeed. In the end, the weight they carried with some of the key stakeholders proved to be the downfall of this project. Had we fully understood their role, we could have better coordinated our efforts and possibly convinced them of the value in our initiative.

Complexity. This issue can be very challenging, especially if the project's requirements are continually changing. Trying to nail down requirements can be tricky, especially if the client has afterthoughts and new ideas they would like to see implemented, which is often the case with software projects. The sooner the requirements become stationary, the sooner the complexity can begin to stabilize. Complexity will continue to fluctuate, but will fluctuate less and less with additional requirements. However, virtually all software projects are complex so the key is to manage the complexity and the risk in order to find the dynamic stability that can be dealt with by the development team. If the team members find themselves over their heads and dealing with issues beyond their capabilities, the project could come to a grinding halt.

Developers are not the only ones concerned about software project complexity. While this is not always true, the general rule is if a system is too complex during development, it may be too complex for users and those who would maintain the system. All of this needs to be addressed during the requirements phase.

Having a methodology to follow goes a long way toward reducing risk and helping developers combat complexity. We found that Pfleeger's Prototyping model [36] is most helpful in accomplishing both. It gives the greatest chance for aspiring developers to shorten the time between prototype to production. This model saves time for the developer and delivers the product to the customer more efficiently. We found that even though this model looks different, it incorporates the benefits of other models we researched without the disadvantages. While using this model, the prototype was constantly being revised throughout each development phase. This kept the project moving, especially when the scope or requirements from our client would unexpectedly change. This was the model we were seeking, the one that would assist in getting our prototype model as close to a production model as possible in the least amount of time, without sacrificing quality.

B. RAPID APPLICATION DEVELOPMENT

After extensive research in our quest to determine the most capable methods that will allow us to develop a prototype into a production-level system, we found Rapid Application Development (RAD) approaches to be the most promising. Although we were only able to construct a 1st iteration prototype in our proof of concept, in order to demonstrate basic functionality, we could not fully apply the application development concepts through a full product development life cycle. This is required to adequately determine the most effective method to go directly from prototype to production level system. The following is a synopsis of some of the reasons we came to this conclusion.

- Rapid application development significantly improves the production process through increased end-user input throughout the development process.

[36] Pfleeger, Shari Lawrence, *Software Engineering: Theory and Practice*, Upper Saddle River: Prentice Hall, 2001.

- Reduced budgets drive the DoD and the Navy to look for cost savings, both in terms of time and money. RAD provides a process that can accomplish both while delivering a superior product.
- RAD utilizing object oriented methods provide the flexibility the DoD and the Navy require. RAD allows for a development cycle that has adaptabity to change for specific needs with out completely reworking the prototype for each required change.
- RAD is helping DoD and industry do more with less. The increased involvement of end-users fosters the development of more accurate requirements. This leads to less time changing, or correcting software capabilities, which equate directly to decreasing the overall project development life cycle time and costs.

The Air Force is just one example of how RAD successfully works within the DoD framework. The thoughtful application of various RAD techniques and tools for system development has the potential for unmeasured success in any DoD or industry based application development environment. RAD not only saves time and money during the development process, but the benefits realized will be apparent in system performance during the implementation and maintenance phases of the product's life-cycle.

C. REQUIREMENTS ANALYSIS

As we have alluded to in the previous section on requirements analysis, the relative importance of a structure requirements analysis approach is that it greatly enhances the strategy of system development. Structured requirements analysis in combination with the most promising and desired approaches and methodologies of Prototyping and RAD, we believe will result in a strategy that will allow any developmental initiative to effectively take a concept from prototype to production n the most efficient and effective means. By following methodological approaches such as McConnell's 9 general steps for development of requirements and utilizing the principles and criteria for requirements development as defined by Young, in combination with those of our proposed methodology for team selection and requirements analysis, developers can employ valuable tools that can ensure accurate and timely extraction of requirements that will greatly enhance the developmental process and provide the critical detail required for an effective, iterative feedback dialogue with the end users.

V. LIMITATIONS AND FUTURE RESEARCH

Through the presentation of our research material, we attempted to put into effect a combination of industry's best practices of Prototyping, Rapid Application Development and Requirements Analysis as they apply to software application development, in order to validate our proposed prototype to production level system methodology, and ultimately answer our research questions through our "Proof of Concept" case. As it applies to research question number one: What are the most promising systems development methodologies that will enable us to use a prototype for production-level systems development? We feel that throughout the exploration of our main areas of research methods of Prototyping, RAD and Requirements Analysis, we feel that we have captured what we consider to be industry's "best practices." Through a combination of the best attributes of requirements analysis, RAD approaches and the prototyping method identified in the Pfleeger model, we firmly believe that we have identified the most promising methodologies that will allow us to effectively and efficiently transition from prototype to production in any development environment.

As our findings apply to research question number two, "How does our proposed approach to current systems development methodologies enable us to effectively transition prototypes into production level systems?" We feel, due to the effects of the various limitations within our case study environment, and the strict constraints we were forced to work inside; we could not thoroughly address all of the detailed aspects required of that depth of analysis in our limited timeframe. Although we could not effectively address the second research question, we feel that the work provided in this thesis presents a firm foundation for continued research and development of our proposed approach and the continued development of our prototype into a production level system in order to determine the validity of the concepts.

We realize that the limitations of our case presented obstacles much like those that are experienced in almost every real developmental effort. All developmental teams have constraints on time and scope, and even more important in this age of recapitalization…constraints on money. Our proof of concept case was no exception to this rule. The following content provides a bulleted description of some of the limitations of our study followed by some proposed areas for follow-on work and future research.

- The project initially started out as a development effort to provide an enterprise solution that combined the full functionality of the property management, financial and telecommunications billing systems in one consolidated and interoperable environment. To accomplish this task required a full-time requirements and development team that had readily available access to all systems and their underlying infrastructure, a considerable budget, and easy access to the operations and end –user personnel. We could not effectively manage the scope of the project with limited assets.
- Could not obtain approval from the “top” to pursue production level development efforts (i.e., CNI approval and funding) While our direct sponsor spearheaded this effort in order to align his organization with the future direction as outlined by Navy leadership, our real challenge was in getting the support of the highest echelons of the Housing infrastructure.
- Since we had measured constraints on funding, we could not employ full time professional developers and programming assets to continue development and testing of the “production-level” system (i.e., Continued development of the prototype to full functionality and complete testing (Alpha, Beta, Lab and field testing “Load Testing”).
- Continuous delays in development efforts due to multiple conference calls, and site visits for the housing BCA. Information was not readily offered or shared on other efforts or what direction the future of bachelor and family housing was oriented.
- Our inability to obtain approval of, or support from software vendors, to gain access to the underlying data structure of the proprietary systems currently used in housing was a major obstacle. As we soon found out, it represented a conflicting interest for the vendors. By helping us they would in essence be helping them demonstrate their obsolescence, and effectively positioning themselves for a loss of a valued source of income.

- Time, we did not have the resources or the time to conduct the first iteration of the developed application User Interface (UI) with the Subject Matter Experts (SMEs).

The aforementioned issues were a prime example of the types of obstacles that program managers and their developmental teams face in almost every developmental effort. The focus of our efforts was to find a solution that, in spite of these obstacles, would allow us to effectively transition form prototype to production. While we could not achieve all of the goals we set out to complete, we believe we have a solid foundation upon which to build for future endeavors. The following information is provided as the context for future research and the continued work in this area.

As briefly mentioned in the case, we began to explore the testing of integration tools like the DoD Common Access Card (CAC) for its potential application for room key operations (encoding and timed de-activation for duration of stay). Continued research into this area could test the feasibility of expanding the use of the CAC card for housing purposes. This could further streamline operations transactions and track real-time history of stay based upon the service member's interactions with and within the system. Additional future research includes the incorporation of this type of system with the operation of the Defense Travel System (DTS) which currently processes transactions for official DoD through the use of both the CAC and the service member's Government travel Credit Card (GTCC). Lastly to continue the testing of the validity our proposed approach, the prototype needs continued development in order to demonstrate the full functionality required and it needs to be supported n a robust application development suite environment with a supporting database application (i.e., Oracle 9i, 10g Applications Suite of components). If effectively pursued, we believe that our approach could be further refined and a true methodology for the effective and efficient transition of "working-prototypes" that can go straight into production can be achieved.

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APPENDIX A. MN4125 MANAGING PLANNED CHANGE IN COMPLEX ORGANIZATIONS: E-BUSINESS TRANSFORMATION SOLUTION FOR BACHELOR AND TRANSIENT HOUSE MANAGEMENT FINAL REPORT

Appendix A contains a detailed analysis of the of the background and operations of the Navy Region Northwest as applicable to the identification and analysis of the enterprise solution and the subject of managing the planned, organizational change as it relates to the context of the “proof of concept” case study.

Naval Postgraduate School
Monterey, California

MN4125

Managing Planned Change in Complex Organizations

E-BUSINESS TRANSFORMATION SOLUTION FOR BACHELOR & TRANSIENT HOUSING MANAGEMENT

Final Report

Submitted by:

Aaron Abdullah

Eric Chai-Chuan Ee

Soon-Chia Lim

Sep 22, 2003

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I. ORGANIZATION OVERVIEW

Navy Region North West Command

As the regional coordinator for the Navy in the four-state area of Washington, Oregon, Idaho and Alaska, Navy Region Northwest provides coordination of base operating support functions for operating forces throughout the region. This includes providing expertise in areas such as facilities and land space management, exercise coordination, housing, environmental, security, family services, port services, air services, bachelor quarters and logistical concerns for the thousands of Navy members and their families in the area, including homeported and transient ships, submarines and aircraft, as well as afloat and ashore tenants. The command also serves as the reporting senior for the Commander in Chief, U.S. Pacific Fleet, headquartered in Hawaii, for Naval Air Station Whidbey Island; Naval Station Everett; Naval Station Bremerton; Submarine Base Bangor and Naval Magazine Indian Island.

The Navy Region Northwest's area of responsibility lies in the Puget Sound Region, the U.S. Navy’s third largest fleet concentration area. Appendix A. shows the primary mission areas. The principal command challenge arises because of the region’s vast geography. The three California ports of San Francisco, San Diego and Los Angeles (LA/LB), comprise a much smaller area than only half of the Puget Sound port area.

Mission

The mission statement of the Navy Region North West (NRNW) Command (see also Appendix B) is as stated below:

Team Northwest exists to support the Fleet. We are military, civil service, and contractor professionals who together operate the Navy’s premier Shore Installations. Our services, products, and facilities are essential to enabling our Nation’s readiness and combat capability. There are four primary goals:

Goal 1. Build Team Northwest Capabilities
Goal 2. Deliver Readiness and Combat Capability to the Fleet
Goal 3. Transform the Navy’s Shore Infrastructure
Goal 4. Enhance Quality of Service

The management of the bachelor and transient housing falls under the ambit of the Community Programs. Their Vision is “Community Pride through World Class Service”. Their specific mission is:

The Community Programs team provides services and sheltering that enhance Quality of Life at home and work. We serve as a catalyst for maximizing partnerships for the mental, physical, and social development of Department of Defense personnel and family members.

Corporate History

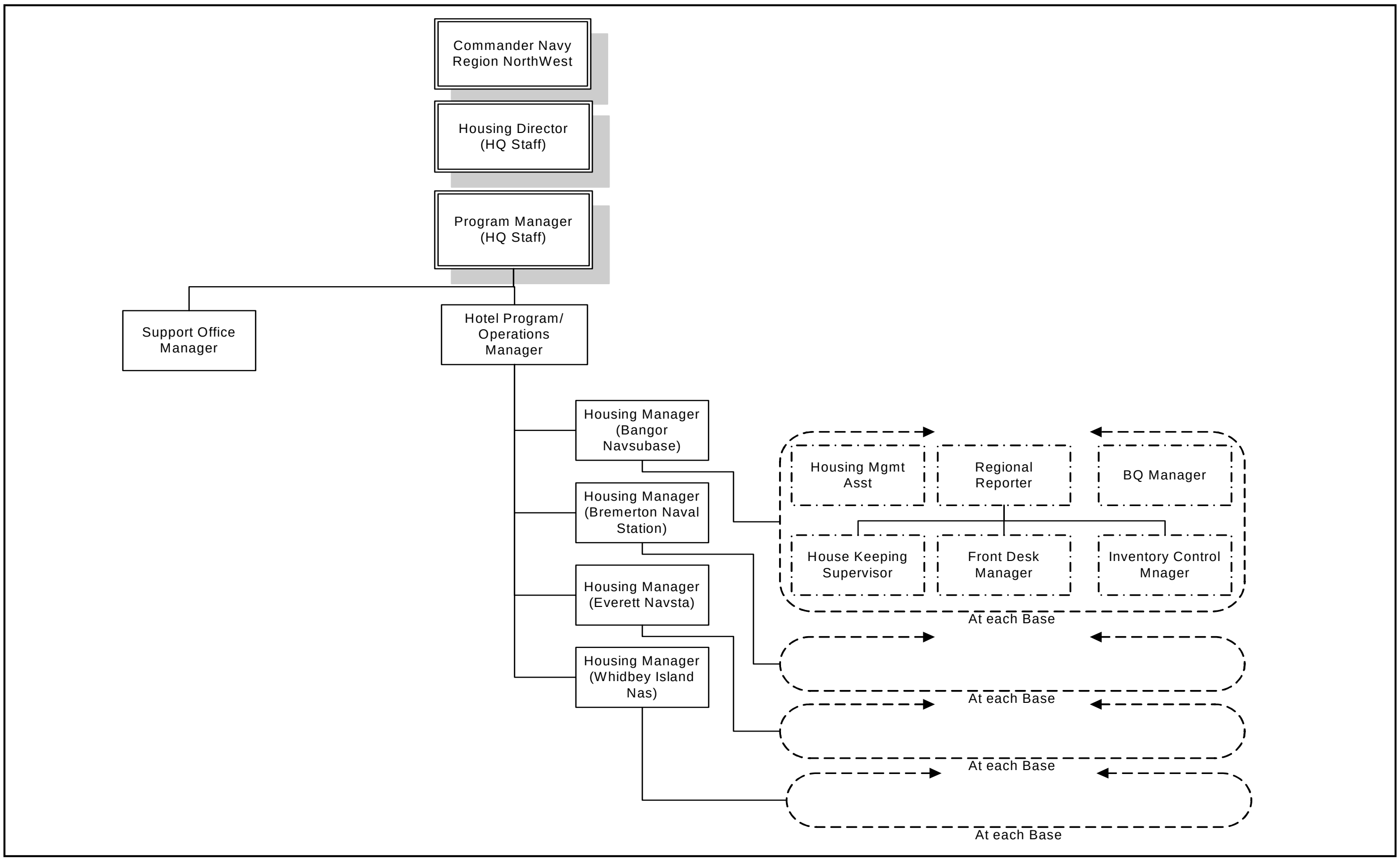
Known from 1903 to 1980 as the Thirteenth Naval District, this command was later called Naval Base Seattle until Oct 1998. In order to better reflect the Navy and mission alignment, the Navy Region concept was developed. In February 1999 the Navy command responsible for consolidated base operations in the Pacific Northwest changed its name to more accurately describe its new scope of responsibility. A notice issued by the Chief of Naval Operations 02 February 1999 re-designated Commander, Naval Base Seattle as Commander, Navy Region Northwest. The name change came in conjunction with a modified mission for the regional command, which oversees facility and land space management, coordination and command of area shore installations, and support to home ported and transient ships, submarines and aircraft. Expanded consolidation of resources, services, functions and organizational management under regional commands has enabled the Navy to operate more efficiently.

Organizational Structure and Size

Region installations and facilities under Commander Navy Region Northwest occupy more than 28,000 acres of land. The Department of the Navy spends about $2.8 billion annually in the region, which is home to approximately 26,000 active duty members, 16,000 civilian employees, 6,000 drilling reservists, 80,000 family members, and 45,000 Navy retirees (See Appendix C).

Under the Navy Region Northwest Command, there are four sub-commands that operate Visiting Quarters (VQ)/Bachelor Quarters (BQ). These installations are namely, Naval Submarine Base Bangor, Naval Station Everett, Naval Station Bremerton, and Naval Air Station Whidbey Island. Together, these installations have a total of 1321 transient rooms in 13 Visiting Quarters (VQs) locations, and 2144 permanent rooms in 34 Bachelor Quarters (BQ) locations. Currently, each installation’s VQs/BQs are managed by a Hotel Program Manager. The overall management and operation of the lodging facilities are overseen by the Sheltering Office, Pacific Northwest Region in support of the CNRNW (Commander Navy Region North West). The department is comprised of the regional office headquarters and three sub-regions (North Sound, West Sound, and East Sound Bachelor Housing), each of which is facilitated by a dedicated compliment of program and housing management staff and employees (military and civilian alike). The estimated personnel count of the command consists of roughly 54 Civilian (GS/NAF) employees and 94 active duty military personnel. Appendix D shows the detailed organizational structure. The chart below shows a simplified structure of the organization for the management of Bachelor and Transient Housing.

Diagram 1: Navy Region Northwest Command Organization Chart


Commander Navy Region NorthWest
Housing Director (HQ Staff)
Program Manager (HQ Staff)
Support Office Manager
Hotel Program/ Operations Manager
Housing Manager (Bangor Navsubase)
Housing Manager (Bremerton Naval Station)
Housing Manager (Everett Navsta)
Housing Manager (Whidbey Island Nas)
Housing Mgmt Asst
Regional Reporter
BQ Manager
House Keeping Supervisor
Front Desk Manager
Inventory Control Mnager
At each Base
At each Base
At each Base
At each Base

Area	VQ	BQ	# Transient Rooms	# Transient Beds	# Perm Rooms	# Perm Beds
Bremerton	6	1	814	1403	80	152
Bangor	3	18	115	127	648	1242
Keyport	0	2	0	0	53	86
Whidbey	2	11	212	212	1143	1707
Everett	2	2	180	207	220	231
TOTAL	**13**	**34**	**1321**	**1949**	**2144**	**3418**

Table 1: Summary of Beds/Rooms in Navy Region Northwest BQ/VQs

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II. STATEMENT OF ISSUE

CNRWR's Focus

CNRWR's focus was two-fold:

a. Identify and develop an efficient and cost-effective means for the management of BQ/VQs.
b. Cost reduction in non-mission critical areas to better align with the organization's strategic objective and cost-structure re-alignment.

Impetus Of Change

The key drivers for change are:

a. Organizational Transformation. The Navy is undergoing transformational changes to meet the new strategic challenges of the 21st Century. Sea Power 21 outlines the roadmap for change. While the program requires substantial capital investment, additional budgets are not expected to be available. This implies that the Navy would need to reduce current expenditure on non-mission critical areas to fund the re-capitalization and the modernization of the fleet for the years to come. There is thus an overarching drive organizational-wide to reduce infrastructure overhead, improve productivity, and streamline processes through technological advancements. These objectives are the premise and key goals of this current initiative; to enhance the management and operations at the BQ/VQs.

b. Harnessing Benefits of IT. With the establishment of NMCI (Navy-Marine Corps Intranet) and high level of IT literacy organization wide, the organization is ready to harness benefits of IT by developing a more efficient and cost effective means of managing BQ/VQs' transactions for permanent party and transient guests, while concurrently providing first class lodging at a high level of customer satisfaction through personalization of services. The technological tools have been available for some time, but the poor implementation of resources provided an "IT fix" where the need for an integrated "IT solution" was required.

c. Increasing ROI of the Operations. With the overarching drive organizational wide to review the cost structure, there is growing emphasis on the return of investment (ROI) of current operations in order to stretch the defense dollar.

Desired Goals

The Commander, Navy Region Northwest's goal for bachelor housing is simply to become a better business organization. This goal will be achieved by securing an enterprise-wide solution that enhances the efficiency and effectiveness of the management and operations of its bachelor quarters in order to provide a seamless Information Technology (IT), e-commerce solution that provides the customer the highest levels of service and satisfaction, while simultaneously reducing the financial overhead associated with the current infrastructure.

The desired outcomes are as follows:

a. **Cost Reduction**. The chief goal is to run the current operations better, but at a lower cost.

b. **Eradicate Waste**. There are frequent occurrences of temporary duty personnel being authorized for off-base lodging when BQ/VQs and Navy lodge accommodation is available. The current authorization process must be inextricably linked to the BQ/VQ/Navy Lodge reservation process to eradicate unwarranted authorization and wasteful practices.

c. **Integrate Information Technology.** The Department of the Navy has invested countless millions in the development and implementation of technological solutions to facilitate its transformation into the 21st century. Among these initiatives are NMCI, the DoD Common Access Cars (CAC), the Government Travel Charge Card Program (GTCC), and the Lodging Touch (Housing Management Software Suite). The problem is that these initiatives each have immense value-added capability as a stand alone system however the full potential of their utility to the naval services has yet to be put into practice as an integrated IT solution.

d. **Improved Customer Satisfaction.** Bachelor Housing availability, attractiveness, cleanliness, and security are the basic needs of all Navy members, and profoundly impact the quality of life of residents, thereby affecting the performance, morale, and retention of Navy personnel. The satisfaction the BQ/VQs provides to naval service members, retirees and family members is critical and thus must be maintained, if not improved, at the highest attainable levels.

e. **Standardization of Service.** It is important that the BQ/VQs across the Navy regions provide a standardized level of service at a standardized cost. Thus, any new BQ/VQ business/operations model must be implementable in all the BQ/VQs throughout the Navy Regions.

Is Issue Analyzable?

The current issue is analyzable from many perspectives, namely, financially, procedurally, and operationally, but the biggest and most subjective aspect to analyze is perhaps customer satisfaction.

a. Cost reduction is quantifiable either by examining the financial statement or simply by headcounts if it involves job cuts/optimization. Efficiency level can be done by a thorough examination of the various processes. Assessment of current operations can be done by benchmarking against the best practices in the hotel industry.

b. There is no available data on wastages and unwarranted authorization of off-base lodging. However, the problem is apparent. In this aspect, a sampling check could be done to determine adherence to the proper authorization process. Alternatively, the process/procedure can be analyzed to assess its robustness against unwarranted authorization. The subsequent increased utilization of the BQ/VQ may serve as a good quantitative pseudo indicator of any reduction in the wastages.

c. The current customer satisfaction stands at 5 points out of 6. The level of customer satisfaction can be determined through feedback or more extensively, by means of a survey.

Can we apply fast fixes?

Quick fixes are possible such as headcount reduction but methods such as that have already been applied to gain the efficiencies that the command already experienced. Additional cuts may result in negative repercussions such as drop in customer service and support, which is inextricably linked to customer satisfaction. Tools such as computerized systems are generally available, such as the Lodging Touch Hotel Management System that they currently employ, although many of them may be piecemeal fixes and the optimum level of efficiency of its intended use may not have been harnessed, which is the case in our current situation. IT implementation would require a concerted effort from the organization's personnel coupled with a re-engineered process or business model that takes into account the unique "business" nature of the BQ/VQs in order to achieve the desired outcome. We could apply a quick fix, but that would only serve to maintain the status quo.

Is there Performance Discrepancy?

Within the processes of the current system there were no real performance discrepancies that easily relate to a particular job or task. However, a key discrepancy the current system faces in the processing of reservations and "check-in" is the validation of official travel and the issuance of Certificates of Non-Availability (CAN) when adequate quarters are not available. This is currently done through contract with SATO Travel, the Navy's travel affiliate, however the system experiences backlog and is inefficient in determining room availability for its clients. The management process of the Visitor's Quarters (VQs) has undergone several optimization initiatives over the years, and as mentioned by the Commander, Naval Region Northwest, the services provided by the BQ/VQs rivaled that of the quality expected of hotels that have achieved a 5-star rating, but at an incredibly low price. However, given the need to reduce non-mission critical expenditures for fleet modernization in order to meet new challenges, there is an immediate necessity to further enhance the efficiency and cost-effectiveness of current non-core mission areas, such as BQ/VQ management. Therein resides the basis for our performance discrepancy. Our team has taken a comprehensive look at both the macro level (financial statement, & authorization) and the micro level (performance and processes) functions of the organization and our assessment are as follows:

a. Financial Statement. Based on the Annual Operating Budget, the financial expenses are summarized in the pie-charts located in Appendix F and G. The charts illustrate that labor is the single most significant expenditure item, constituting almost 50% of the total expenses, and this figure is expected to continue to rise over the years. Among the other expenses category, consumable amenities accounted for roughly 30% of the other total expenses.

b. Authorization discrepancy. The significance of the financial accountability and the authorization of off-base accommodation is an essential aspect of trimming wasteful expenses. It has been indicated that the Navy's budget for TAD funding is allocated for official travel of all naval personnel, with the understanding that command personnel must utilize naval facilities to the fullest extent possible before seeking accommodations elsewhere. This should only be a recourse if a facility has issued a CNA to the service member for acquiring outside lodging (i.e. Hilton, Embassy suites, etc…) which carries a much more significant cost to the Navy's budgeted funds overall.

c. Performance Benchmarking. There were no significant performance discrepancies or malpractices that had been uncovered to date. In fact, senior naval personnel have stressed that the BQ/VQs management personnel extensively employ part-time workers in order to minimize wage expenses and efficiently scale work requirements to the given variability of the occupancy level at the BQ/VQs. In addition, practices such as housekeeping are measured directly to specific performance & productivity standards. A recent interview with the NPS Housing manager on the privatization of the base BQ/VQs confirmed the established performance benchmarks required of naval facilities.

d. Reward and Penalty Scheme. A reward scheme for performance is established and is based on job output which is easily quantifiable for basic processes, such as number of rooms cleaned per day by an individual employee. This is simply based on the remuneration rate which is applied to the output. While there were no formal penalty schemes associated with job performance, an informal system existed as a good number of these housekeepers are part-time employees; their job performance would practically determine their call-up rate.

e. Generally, there were no specific job performance or skill inadequacies at hand. However, there was a general concern with not receiving the proper training on newly implemented systems, which appears to have been a consistent theme among the various transitions the BQ/VQ's have experienced over the years. The discrepancy in budgetary expenses for BQ/VQ's management may not be simply met by an enhancement in job performances and improved efficiencies since most functions are already performed at a reasonably optimal level. A revolutionary business model and a new way of managing the BQ/VQs may have to be implemented if major cost saving are to be realized.

Could they do it in the Past?

It may not have been possible without the infrastructure that the NMCI initiative promises to bring to naval installations. The new IT infrastructure that will be established throughout all naval installations, coupled with the new waves of IT that pervades every corner of modern living, is an absolutely critical component behind the continuity that is required for the desired end-state. With the aid of greater technological capabilities and the increase of technical savvy among employees and customer, the implementation of a more revolutionary system or e-business model can greatly enhance the current and future requirements and harness greater savings needed for the transformation.

Can the Task be simplified?

Task simplification can always lead to an increase in efficiency. This seems to be the direction in which we have to focus in order to generate the needed cost savings while continuing to maintain high productivity and the same, if not higher, levels of customer satisfaction.

Do they have what it takes?

With the vast amount of resources of the command, their sound business practices and insightful leadership coupled with that of well-educated, highly techno-savvy personnel, the Navy definitely have what it takes to bring about revolutionary changes to BQ/VQs.

Performance Barriers

Conflicting Demand From The Job

a. At the micro-level, conflicting demand itself could take various forms in this context. Examples include: The performance expectation of an employee versus the time constraints he or she has on the job; cleaning personnel would not be able to deliver a quality job if he/she is just not given the right amount of time to complete it. Conflict could also arise from unclear or undocumented job scope requirements for the employees, which is usually the case for the front desk operator who is usually performing multiple tasks.

b. At the macro-level, the management personnel of the BQ/VQs need to contend with the need for budgetary savings while maintaining, if not enhancing customer satisfaction. Based on the cost analysis, major savings may be derived from reducing headcount, which is currently the single largest expense of the BQ/VQs. However, in doing so the current level of services, in terms of immediacy and availability are likely to be adversely affected.

Multiple Agendas

Management is many a times overwhelmed by multiple agendas. One example that illustrates this point is the agenda to reduce cost. Most of the jobs in the BQ/VQs could be filled by civilian employees whom are paid at a fraction of the total dollar cost when compared to that of their military counterparts. However, in previous cost saving efforts, the service member's positions, which were identified as a potential cost savings reduction, were actually retained in preference to their civilian counterparts due to the unique requirements of the naval Mess Specialists rates. This secondary agenda had limited a possible and reasonably feasible solution, hence skewing the focus of the cost-saving agenda.

A Final Check on Assumptions

a. An important assumption that was made is that there must a front desk operator in every BQ/VQ 24 hours a day and 7 days a week to maintain routine functioning of the BQ/VQ's operations. Only through that requirement could a certain level of service be guaranteed. With modern technology, this assumption is being challenged in the effort to bring about revolutionary change. The challenge of this assumption coupled with that of a revision in the fundamental processes of the BQ/VQ lead us to believe that the authorization, validation, and automation of the current BQ/VQ infrastructure and systems have to be re-engineered.

b. On the other hand, the assumption that the customer is ready for a revolutionary concept in BQ/VQ management must be verified. Despite the pervasiveness of IT and its influence on our daily life, the customer may be slow to keep up and may in fact resent the change if they are forced into it.

c. The assumption that an IT solution is able to save cost must also be meticulously verified. Many of the previous IT fixes remained as piecemeal computerization efforts that required upfront investment of IT systems and infrastructure, but failed to deliver the wholesome benefits and cost savings it promised. We want to avoid the "IT Fix" and concentrate on the "IT Solution".

d. A final, but perhaps the most important assumption that we must make is that the organizational culture is one that is conducive to change and ready for change. This is where most organizational change initiatives fail. Changes that come in the form of technology, in order to have the "latest-and-greatest", and change for-change-sake is inherently dangerous to an organization's stability. We must initiate change because there is a driving need for the entire organization to change in order to stay competitive; change which is not only supported by top-down management, but one that is driven by bottom-up necessity and involvement form the employees closest to the process and closest to the problem. Then, and only then, can the change be embraced that meets both the goals of top management and the end user alike.

Organization Appraisal

a. Use Technology intelligently?

i. Requirement driven. In the Enterprise-wide reduction in cost, the proposed solution requires an automated BQ/VQ reservation system to replace the current cost & labor intensive front office located at each BQ/VQ in the North West region. The proposed web application solution was deemed to be appropriate. Such systems have proven to drive operating cost lower in the past implementation. The use of web application technology is driven by the requirement of the project and not by the need to use the technology.

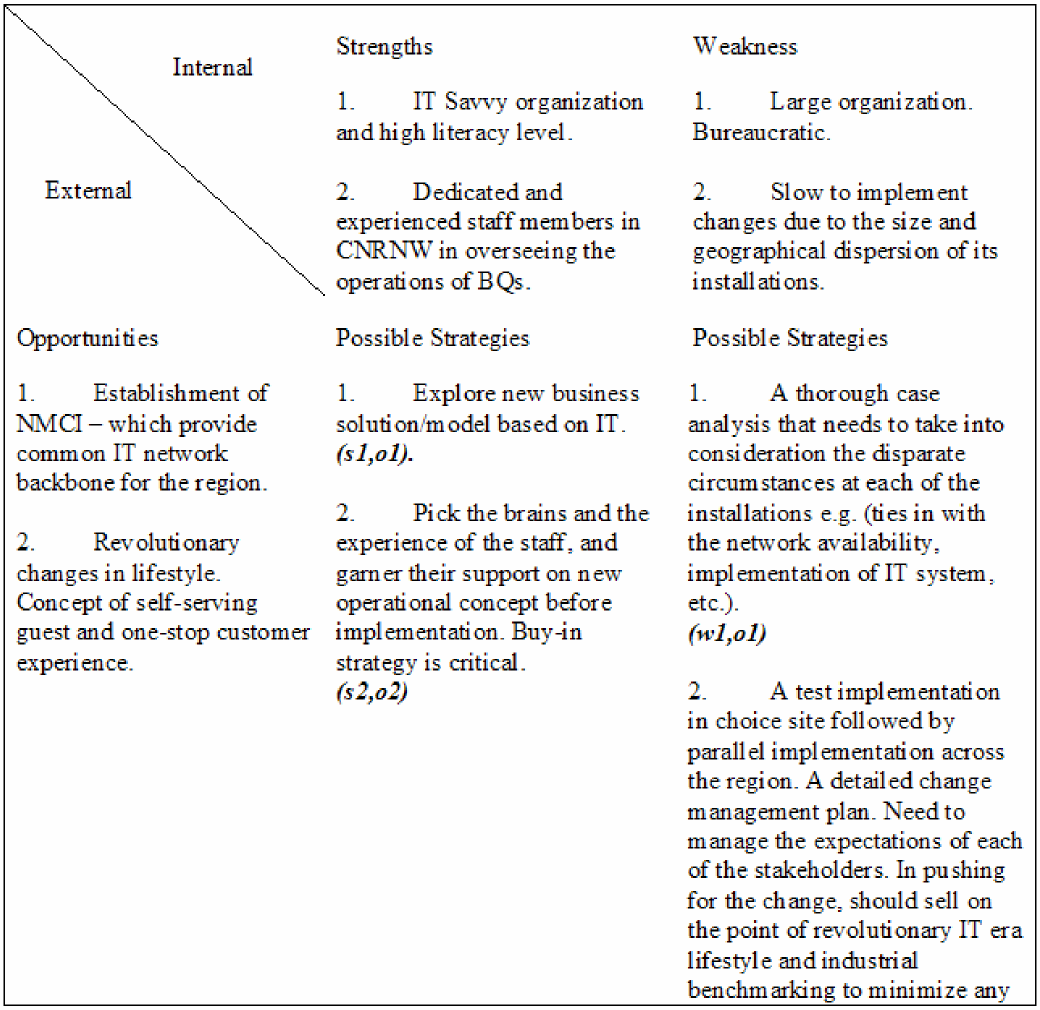
ii. Customer Satisfaction. As this is a pseudo service industry, customer satisfaction is important to the change management implementation. Due to the dislocation of its customers, the monitoring of such index is best achieved through web-based means.

b. Is it behavioral and organizational smart?

The organization is behaviorally and organizationally smart in the execution of its core mission – war fighting. In doing so, most of its resources are channeled to those mission critical areas. Support/Maintenance operations such as the management and running of BQ/VQs, while important in its impact on service members' quality of life and morale usually received less attention and are of lower priority in this large organization. While the organization operates state-of-art war fighting technologies, the best combat computer /Command and Control systems in the world, and has a high level of literacy and technologies know-how among its members, its investment in the non-mission critical areas are piece-meal and less synergistic. Many of its IT investments were more like IT fixes to computerize processes, rather than holistic IT solutions that bring about genuine improvements in work practices, processes and productivity.

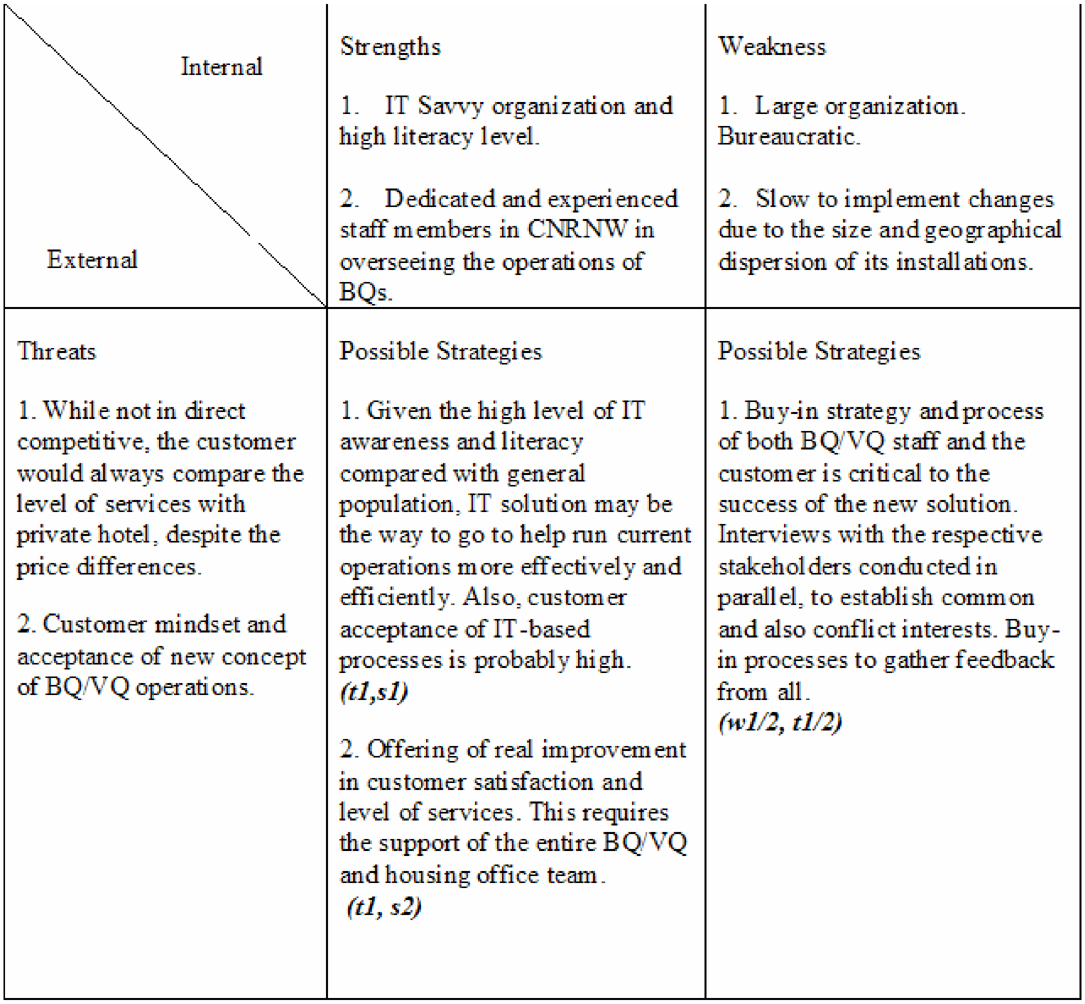
Given its command structure, it is easy to mobilize members to achieve objective goals. However, given the sheer size of the organization and its highly hierarchical structure, the organization may at times prove to be too bureaucratic, and too slow to adapt and change.

SWOT Analysis



Internal External	Strengths 1. IT Savvy organization and high literacy level. 2. Dedicated and experienced staff members in CNRNW in overseeing the operations of BQs.	Weakness 1. Large organization. Bureaucratic. 2. Slow to implement changes due to the size and geographical dispersion of its installations.
Opportunities 1. Establishment of NMCI – which provide common IT network backbone for the region. 2. Revolutionary changes in lifestyle. Concept of self-serving guest and one-stop customer experience.	Possible Strategies 1. Explore new business solution/model based on IT. ***(s1,o1).*** 2. Pick the brains and the experience of the staff, and garner their support on new operational concept before implementation. Buy-in strategy is critical. ***(s2,o2)***	Possible Strategies 1. A thorough case analysis that needs to take into consideration the disparate circumstances at each of the installations e.g. (ties in with the network availability, implementation of IT system, etc.). ***(w1,o1)*** 2. A test implementation in choice site followed by parallel implementation across the region. A detailed change management plan. Need to manage the expectations of each of the stakeholders. In pushing for the change, should sell on the point of revolutionary IT era lifestyle and industrial benchmarking to minimize any

<u>Stakeholder Analysis</u> (See Appendix H)



Internal External	Strengths 1. IT Savvy organization and high literacy level. 2. Dedicated and experienced staff members in CNRNW in overseeing the operations of BQs.	Weakness 1. Large organization. Bureaucratic. 2. Slow to implement changes due to the size and geographical dispersion of its installations.
Threats 1. While not in direct competitive, the customer would always compare the level of services with private hotel, despite the price differences. 2. Customer mindset and acceptance of new concept of BQ/VQ operations.	Possible Strategies 1. Given the high level of IT awareness and literacy compared with general population, IT solution may be the way to go to help run current operations more effectively and efficiently. Also, customer acceptance of IT-based processes is probably high. ***(t1,s1)*** 2. Offering of real improvement in customer satisfaction and level of services. This requires the support of the entire BQ/VQ and housing office team. ***(t1, s2)***	Possible Strategies 1. Buy-in strategy and process of both BQ/VQ staff and the customer is critical to the success of the new solution. Interviews with the respective stakeholders conducted in parallel, to establish common and also conflict interests. Buy-in processes to gather feedback from all. ***(w1/2, t1/2)***

III. IMPORTANCE OF THE ISSUE

Is it worth pursuing?

Pursuing organizational change is imperative to conducting business in today's Navy. The Naval fleet needs modernization in order to keep up with new challenges in the 21st century. Additional budget increases are not expected to provide for this modernization requirement and the need for funding increases through the increased savings generated from non-core mission areas will be paramount to the program's successful implementation.

What are the tradeoffs?

Rewards and Punishments

While at the corporate level, the reward of resolving the issue is apparent – combat effectiveness of the Fleet. At the Navy Region Command level, the reward for pursuing the issue is not apparent. In fact, it may seem to be punishing, since the responsibility of individual may expand, assuming some form of efficiency cut or downsizing. Individual will have to work harder and his/her scope will be wider to account for greater productivity and enhanced efficiency. Also, downsizing of the support personnel may mean reduced redundancy, and that may result in problems during crisis.

Customer Satisfaction

Conventionally, apart from the accommodation facility, customer satisfaction is attributed to the level of services provided by the front-desk or accommodation personnel, and very often through face to face contact. If downsizing is required or more tasks are designated for increased productivity, it will logically reduce the level of service that service personnel could provide to customer. It will require a leap of faith, a revolutionary change in lifestyle or a total change in business model to maintain the same, if not improved, level of service.

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IV. OBTAINING INFORMATION

Obtaining Information

In gathering and analyzing information on our Project, a spectrum of methods was employed. These were:

a. Interview
b. On-Site Visit with Discussion
c. Performance Metrics and Benchmarking/Best Practices
d. Survey/Feedback

Interview

Extensive interviews were conducted with the various stakeholders involved in the project, as well as external subject matter experts. All in all more than 10 interviews were conducted. The stakeholders interviewed include the various interest parties such as the General himself i.e. Commander Naval Region Northwest RDML Hering, HQ Staff, and the BQ/VQ staff. These interviews allowed us to understand the environment, the stakeholders' interests and concerns, which provided us a good basis for the stakeholder analysis.

The interviews conducted with the subject matter expert aimed to seek objective and learned opinion on the issues that we were concerned. Apart from the Internal subject matter expert in the HQ (particularly Jonnie), we had attempted to interview a number of external subject matter expert as well. This included the BQ/VQ manager of the privatized NPS BQ/VQs, and hotel manager of Hilton, Monterey (although this latter attempt fell through, due to the lack of response from the hotel).

In conducting the interviews, we had consciously used the technique of "5 Whys" to drill down to the root of the issue.

On-site Visit with Discussion

In order to understand the matter better and have a deeper understanding of the entire organization and the BQ/VQ environment, a visit was made to the HQ CNRNW at Bremerton to conduct intensive discussion with the HQ staff and the BQ/VQ personnel.

By conducting an in-depth discussion, we have managed to solicit much important information such as the processes, financial statements, as well as take cognizance of some unique aspects of the organizational culture such as the military-civil differences.

Performance Metrics, Benchmarking and Best Practices

It is important for us to establish some form of performance metrics to facilitate in our analysis. By establishing the criteria or framework of performance, then could the level of performance, its efficiency, effectiveness, be measured at least in a more objective manner? In trying to establish a simple framework for measuring performance, the following steps were taken:

a. **Establishing a Framework.--**Measurement begins with establishing a framework. A measurement framework is critical to linking organizational objectives to the business unit and individual levels by ensuring everyone understands not only how roles align with organizational objectives, but also how each unit and individual contributes to the outcomes. This framework was established to comprise the following four aspects:

i. Customers--measures performance against expectations (e.g., satisfaction, retention, acquisition, and profitability).
ii. Financial--measures economic consequences of actions already taken (e.g., income, return on equity, return on investment, growth, and cash flow).
iii. Internal--measures effectiveness, adaptability, and efficiency of internal processes. Such measures may identify a need for new processes.
iv Innovation and learning--measures employee skills, information exchange, and organizational procedure.

b. **Identifying Performance Measures.** There are a number of measurable variables and parameters that could be tracked (e.g. productivity, quantity, timeliness, cycle time, resource utilization, or costs).

c. **Analysis.** The following analytical methodologies are employed in analyzing the various performance measures:

i. Baseline (starting point) and Trending. This was done for financial performance and customer satisfaction level. Financial performance could be readily derived from the financial statements comparing the status quo (baseline) with the expected performance. Subsequent trending would be useful in monitoring the financial performance and guarding against cost creeping. Similar baseline and trending methodologies could be similarly applied to establishing the customer satisfaction, however the means (in the form of feedback and customer satisfaction surveys), is more subjective (as compared to financial statements).
ii. Control (by best practices). In determining the efficiency level of the BQ/VQ processes and practices, we have used benchmarking/best practices or comparison with the industrial best practices as a guide. These best practices and industrial benchmarks are established either through interviews with the subject matter expert or through some of the research literature that we came across.
iii. Diagnostic (problem identification) and planning (prediction/future planning). This is essentially based on the analysis of the problems that would be raised or expected.

One of the best ways to ensure best-in-class performance is to know how the others in the industry, or the closest approximation, are doing, how we compare and what it takes to become the best. In our case, the BQ/VQ is not quite in the competitive hotel industry business. Nevertheless, we had used the commercial hotel/accommodation services as a comparison due to the similar nature of business. In comparing with the other hotels or accommodation services, we had focused primarily on the operational indicators of performance. As elaborate above, the established standards are solicited through interviews with both the internal and external subject matter experts, as well as the research literature that we came across.

Survey/Feedback

Survey/Feedback would be important in our information gathering process in two important ways. It serves to better gauge the readiness of our customer in accepting our new business model, as an indirect means of garnering support in its eventual implement (reduce resistance to change) and as a means of continuous monitoring of the customer satisfaction level. This survey/feedback to be conducted was planned but would only be conducted in the implementation phase. The following steps would be taken for surveying or soliciting feedback:

a. Identify objective. All surveys/feedback are conducted to gather information relevant to a specific problem or situation. The key to a successful survey is to clearly identify your research objective up front. The ideal objective has a narrow scope and can be clearly stated. The wider the scope, the more complex your survey will become and the less meaningful the results will be.

b. Decide what information is needed. Once research objective is defined, information required to reach the objective must be identified. The objective identified must be clear and narrow, and information to be gathered must be specific and avoid the temptation to gather information that does not help solve the problem at hand.

c. Develop a questionnaire. In developing the questionnaire, we would consider the following:

i. Consider who will be taking it and how you are going to distribute it for maximum impact. If web survey is chosen, the two primary methods for distributing a web survey are from a website or as a link in an email message.

ii. Pay special attention to the amount of time required o complete the survey/feedback. If it is too long, fewer customers may be interested in completing the survey/feedback.

iii. The beginning of your survey should include an introduction that is enticing and clearly states the purpose of our survey/feedback. It is important that the introduction grabs the attention of potential respondents and encourages their participation. Failure to do so will decrease the number of participants. The introduction should also include instructions on how to complete the survey and an estimate of how much time it will take.

iv. The way questions are phrased will have a major influence on the answers we get. If your questions are biased, unclear, or ambiguous, it will get misleading responses. We should also consider how specific the questions need to be and whether our audience is willing and able to answer them. To maximize results, the following would be noted:

v. Ask questions that provide the information needed to solve our problem.

vi. Use plain, easy to understand language.

- Avoid technical terms, jargon, and acronyms.
- Organize your questions in logical groups.
- Ask important questions first -- demographic questions last.
- Be sensitive to the feelings of the respondent.

vii. As a general rule, our survey will be kept short, simple, and to the point. Finish your survey with a place for participants to add comments and thank them for their assistance. If you plan to publish the results, include instructions on how and when participants can get a copy.

d. Conduct the survey. Before conducting the survey, test it on a few people to determine if it is clearly written and can be understood by people representative of your target audience. Testing the survey might take several iterations, but it is well worth the effort. Once the trials have confirmed that the questionnaire is clear and unambiguous, it is ready to be conducted.

e. Analyze the responses. The key thing to remember is that we should always relate your analysis back to your objective.

f. Recommend a course of action. With the objective of the survey/feedback and results in mind, specific actions must be an outcome, even if it recommend status quo.

Reference Source: Creative Survey System
(http://www.chartwellsystems.com/sdesign.htm**)**

V. RESISTANCE FORCES

Major Forces That Stop the Issue From Being Resolved…

There were a number of resistance forces to resolving our issue at hand. However, there were also a couple of factors that we could exploit to counter these resistances to bring about an environment and an atmosphere more conducive to change.

- Organizational Culture

Generally, the organization is hierarchically structured. This, in a way, resulted in many administrative layers and maintains a high level of bureaucracy. In addition, there was a civil-military divide, largely due to the different employment scheme that warranted separate sets of considerations. Also, the different training background might also have resulted in different attitude, mindset and disparate behaviors.

- Change Fatigue/Resistance to Change

Over the years, many and frequent initiatives were being embarked upon to increase efficiency and reduce cost. The frequency of such initiatives resulted in kind of a change fatigue where new initiatives were viewed as just another one, rather than instilling enthusiasm towards innovative change and improved ways of doing things. In addition, personnel had barely settled down with changes from the last initiatives when new initiatives were being embarked. Thus, personnel were concerned with continuing in an ever changing and transient state of affair.

- Policy

In past optimization efforts and initiatives, civilian cuts have been maximized in order to gain efficiencies that the command now experiences. While the military billets were apparently more costly and could be substituted to harness more cost savings, these military billets were in fact kept and maintained, at the expense of the civilian ones. This was probably due to larger organizational manpower policy concerning land versus sea and peacetime versus wartime job matching. Current policy may not be conducive to more change and reduction in billets in BQ/VQ management.

- Technological Advances

Technological advances have somewhat alleviated the excessive burdens of a paperwork intensive process, however, policies and rules were not changed to support current operations. Implementation of new IT solution, must also depend on available infrastructure, else, its extensibility would be hampered. Additionally, techno-savvy of customer and employees alike would determine the timeliness of its introduction. Else, extra training efforts are required, and non-intuitive process may result in customers' frustration and a drop in the customer satisfaction level.

- Reward and Penalty System

While at the enterprise level, the reward of cost restructuring to re-invest in fleet modernization programs is apparent and imperative, there is a general lack of incentives at lower organizational levels to realize the value of improvements and cost cuts. In the contrary, successful cost cutting in the operational level may immediately result in higher workload, responsibility of individuals, and lower system/personnel redundancy.

Countering the Forces of Resistance:

- A New Era – Change in Lifestyle

We are in a new information technology era. The advances of technology and internet have pervaded every aspects of our life and change some of the very fundamental of our lifestyle. New lifestyle and preferences are fashionable and viewed with fascination. Also, increasingly one-stop service station and extensive service personalization are viewed as a basic service requirement.

- Change Commitment

Management, both at the enterprise and operational level, is supportive of transformational of revolutionary change.

VI. ALTERNATIVES (THE OPTIONS)

Alternatives

After several rounds of brainstorming and discussion with the respective stakeholders on the possible alternatives to achieve the desire outcomes as described in our earlier chapters, the group has narrowed the list of possible alternatives to 5. These 5 alternatives are as follows;

Cost Reduction

A common cost reduction operation in an organization is downsizing. Downsizing is defined as a reduction in the number of jobs. It may take place at the level of a work unit or an entire business as in the case of the BQ management. Often downsizing is carried out with certain amount of layoffs, and when it is necessary, transfer of personnel to another branches.

In response to the cost cutting measures experienced Navy-wide, downsizing is a quick fix and by far the simplest and most immediate way of achieving cost saving. However, the downsizing process is even more important because organizations may fail to achieve the improvements in productivity and profits that they had expected. The longer-term costs of their actions are greater than the short-term savings. The reasons for such widespread failure are that there are often very significant hidden costs of downsizing. These costs include the loss of key talent and valuable corporate memory, loss of customers due to a decline in quality and service, lower productivity, decline in innovation and risk taking, and even erosion in external reputation and brand image. They usually stem from the effects of job insecurity, increased resistance to change, decreased motivation, stress, and erosion in trust and loyalty, all of which often accompany downsizing

Downsizing has to be carried out after a careful job scope analysis within the organization. It also involves identifying major risks, calculating all the costs, direct and indirect, associated with alternative strategies and policies, and evaluating all alternatives which would reduce the need for layoffs. Examples would include retraining and transferring redundant employees to other units in the company, using attrition to absorb redundancies, work sharing, laying off temporary employees, freezing or reducing hiring, and changing pay and working hours to eliminate issues related to the need to downsize.

Cost reductions in other areas of operations were also explored, but none would result in substantial savings.

Performance Enhancement Measures

Best Practice can be used as a tool to increase the productivity and efficiency of work processes within the organization. Best Practice is the continuous process of learning, feedback, reflection and analysis of what works (or does not work) and why co-workers, exchange and dowithent important lessons learned. More than ever before, organizations need to find ways to capture employee knowledge and best practices and ensure that they are shared and used throughout the workplace. To do this, organizations must uncover and address the gaps between their goals and their current knowledge transfer practices. New tools and technologies must be supported with process and cultural changes and populated with high-quality structured content. A complete solution requires:

- effective architectures, techniques, and standards for organizing and presenting content effectively
- new skills to help workers understand what knowledge to capture, and how to use it to maximize its usefulness to others
- revised goals and expectations that make knowledge capture a high-priority in everyone's job, and
- efficient systems and tools that centralize knowledge content and make it easy to store, access, and maintain

With effective processes, techniques, and standards in place for capturing and transferring knowledge and best practices:

- valuable knowledge and experiences are retained when workers leave
- changing policies and procedures are easily implemented across the organization
- new workers are brought up to speed more quickly, and
- existing knowledge is easily found and used when needed.

Organizations that implement a comprehensive program for capturing and sharing best practices can expect to:

- increase operating efficiency
- improve performance, and
- gain competitive advantage

Benchmarking can be a powerful tool for assessing cycle time, quality, and resource allocation, training practices, sales productivity and other business-related issues. In order for a benchmarking program to succeed, it must be relevant and useful. This requires the program to:

- evaluate the right metrics
- measure these metrics accurately and relevantly
- report the metrics clearly and in a timely fashion

This process requires:

- input from experts in the sector to be benchmarked
- an independent/confidential third party to collect the data
- well-designed data collection instruments
- thorough data quality control
- informative user-friendly reports

Most benchmarking programs also include customized reports for each participant that compares that participant’s metrics against those of others in the benchmarking program. These reports can provide quartile or ranking information for each metric.

Organizational Restructuring

Few companies have escaped the need to reorganize, acquire, divest, outsource, or downsize. Given the dramatic changes taking place in the external environment of enterprises in most countries and sectors of the economy, management must be constantly alert to the need to restructure and adapt. For the military, similar needs for restructuring exist. With the global change in security outlook and strategic landscape, coupled with the rapidly advancing technologies, the military is undergoing the Revolution in Military Affairs (RMA). In order to win the next war, there is an urgent need to re-align the force structure and modernize the ORBAT (Order of Battle), along with that issue is the need for the realignment of cost structure (not the loss and profit in business sectors) and the ever increasing drive to operate more efficiently and cost –effectively.

Restructuring takes many forms. In our context, we will examine 2 specific types; Outsourcing and Privatization:

a. **Outsourcing**. Outsourcing involves contracting with an outside organization to undertake specific activities which previously were carried out by the firm itself. These activities may vary from administrative services such as payroll processing or security guards to entire functions such as information technology and even more recently contract manufacturing. It is a form of restructuring since it often implies fundamental changes in strategy, organization, and people. While the concept is not new, the ways in which companies outsource and its importance are recent. Specialized service companies are demonstrating that they can provide services more cheaply, of better quality, and more reliably, particularly in activities requiring a different set of skills than the mainstream business of the company. In our specific problem, outsourcing can range from housekeeping, maintenance to the entire BQ/VQs operations – which is almost like privatization.

b. **Privatization.** This restructuring option is often used by the government to trim and focus the civil service to their core areas. It is employed in areas where additional competitions is viewed as necessary to improve efficiency and in areas where state subsidies and favored treatment may be considered unnecessary or excessive. It is also thought as a means of institutionalizing effective performance-based remuneration and penalty scheme which is absent in most government establishments, and state-owned companies. The many advantages and potential pitfalls of privatization are listed below:

Advantages:

- **Improve Program Performance —** Government workers tend to have fewer incentives to strive for superior performance than do private sector employees. Private sector employees can be strongly motivated to perform with promotions and financial incentives. Government employees are paid the same regardless of how well they do or how well the program does. Experience shows that when government employees have been privatized, program performance has improved remarkably.
- **Increase Accountability** — Mid-level management in government are virtually immune from termination, unlike the private sector where termination for non-performance can occur. Virtually all government contracts have a 30 or 60-day termination-for-convenience clause and strict performance standards with built-in financial penalties if a contractor fails to meet those standards. Naturally, this substantially increases accountability for performance.

- **Cut Program Costs —** the private sector can often save 10 percent to 15 percent of the administrative costs of a public program. Centralizing functions or introducing automation can often achieve even greater savings while also improving customer service. In most services privatization contracts, improving services is the primary goal, but it is certainly an added benefit to save money at the same time.
- **Accelerate Innovation —** Because of competition and the absence of procurement rules, the private sector can introduce technology advancements at a faster rate than the public sector. A large private company will usually have more expertise than a small agency, and frequently will also have a better understanding of complex government programs. Innovative improvements spring out of this expertise.
- **Limit Size of Government —** some states have limits on the size of the government bureaucracy. To support this effort, new programs requiring implementation are ideal candidates for privatization.

Pitfalls:

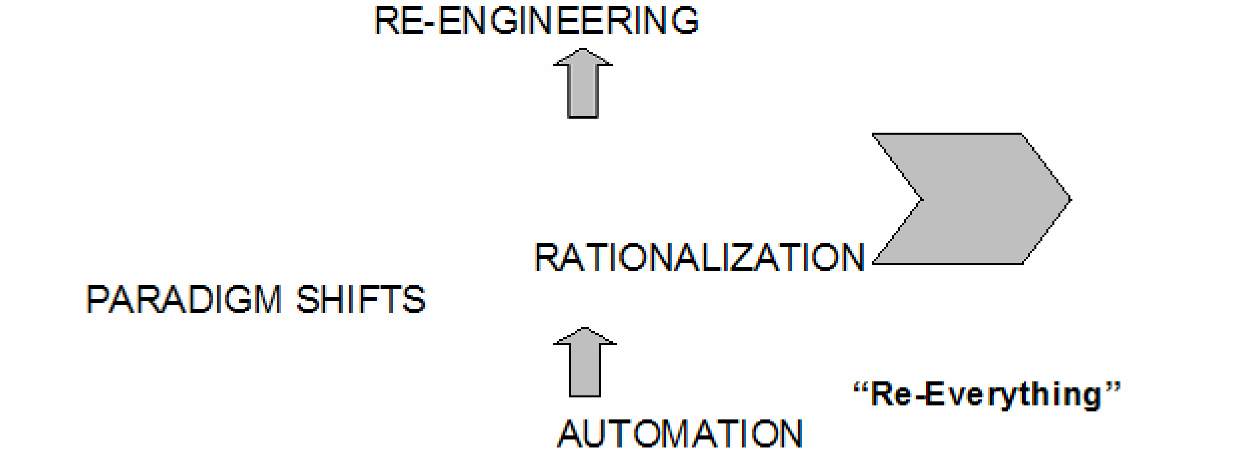
- **Higher Management —** the Command of Navy Region Northwest must be supportive of privatization for it to be successful. He must be convinced that privatization is the way best way to achieve potential improvements in program performance, customer service, and cost savings. Implementation could be the use of pilot privatization programs which enable management to review before complete roll-outs.
- **Government Employee Unions —** Privatization could create problems with employee unions. In such an effort, there would be job cutting and inevitably retrenchment. This aspect of privatization must be handled with to prevent unpleasant encounters as a result of being an efficient organization.

Essentially, privatization of the BQ/VQ management could achieve many clear advantages the customers win by receiving more and better services. The former government employees and new employees win by having competitive pay and benefits, more opportunity for advancement than in government, greater job satisfaction and a sense of accomplishment as part of a successful program. The taxpayers win by having a more cost effective program. The contractor wins by earning a fair profit for quality performance. Making all these diverse groups realize that privatization is the winning proposition for our task. However, the execution of the restructuring process is complex. There would be ripple repercussion if not handled properly.

Adopt New Business Model w/ Complete IT Integration

Paradigm Shift and Thinking Outside the Box. In today's world, new business environments are characterized not only by rapid pace of change, but also discontinuous nature of such change which requires a radical re-conceptualization of the fundamentals of the business and its operations. Such rethinking of nature the business and the nature of the organization itself characterize paradigm shifts that are hallmark of business model innovation. Examples of such new business models include Amazon.com and e-Toys, relatively new entrants that are threatening traditional business models embodied in organizations such as Barnes and Noble and

Toys R Us. Such business model innovations represent ‘paradigm shifts’ that characterize not transformation at the level of business processes and process workflows, but radical rethinking of the business as well as the dividing lines between organizations and industries.



Reengineering …IT-intensive Radical Redesign
Rationalization …Streamlining Bottlenecks
Automation …Replacing humans with machines

Innovation: New Markets Business Model. The New Market companies all seem to offer something that has never been offered before. Not just convenience (such as Amazon shopping), but completely new concepts such as on line bidding and real time messaging. People are interested and this creates a certain fascination almost like word of mouth marketing.

Due to the nature of BQ/VQ being protected from competition, thinking outside the box for innovation business is particularly relevant to our current problem. One possible new business solution is virtual service delivery. Given that the majority of the customers of BQ/VQs are in-house members, presumably familiar with the military environment, virtual front-desk model may be viable, with enhanced and personalized e-commerce solution. Essentially, the front desk operator/manager may no longer be necessary at each BQ/VQs, but rather consolidate functions at central locations. Queries and check-in/out are fully and seamlessly integrated through enhance IT solution. Services are specifically delivered only on request and need basis. In this way, substantial manpower and hence cost could potentially be saved. Other new business models can also be explored.

IT Solution. Conceptually, an organization should be able to redesign process or introduce a new business model without the aid of IT. However, in today’s information era, the success of a new It business model would be difficult to consummate without the enabling IT. It is important though to understand that the IT solution must be holistic and stem from an understanding of the nature of the business operations. Else, we are back to today’s piecemeal IT fixes which did not harness the full benefits of IT investment. In IT solution, the following success factors must be taken into consideration:

a. Integrated Solution. Reduction of physical coupling in process reconfiguration may be enabled through the application of shared computing resources such as database and imaging technology.

b. Parallel Processes. Many firms have successfully capitalized on the enabling role of IT in reconfiguring their business processes from a highly serialized pattern with many intermediate steps to a parallel pattern permitting several functions to proceed independently. This results in more responsive processing and enhanced checks and balances.

c. Information Coupling. Enhancement in information coupling enabled by telecommunication technologies to greatly improve communication and collaboration between different functions involved in the process.

New Business Model w/ Complete IT integration and Restructuring.

For the strategic objective of focusing on core mission areas, the eventual restructuring may yield the most dividends in the long run. One option is to amalgamation with Navy Lodge. Amalgamation is a form of strategic restructuring that aims at harnessing synergies between different organizations or different parts of the same organization. In the specific problem that we are looking at, the possibilities include amalgamation with Navy Lodge or of the BQ/VQ organizations along geographic regional divides. In considering a merger or amalgamation, organization must consider not only the financial returns and risks for shareholders but also the short- and longer-term impact on the other stakeholders: employees might lose their jobs but also there might be opportunities for other employment internally or externally which would minimize this impact; customers might benefit from broadening the product line or new technology; and sustainability or long term viability.

VII. EVALUATION CRITERIA

List of criteria

The following is a list of criteria that we will be using for evaluating the alternative courses of actions that Commander Naval Region Northwest might take, with regards to the issue that we seek to resolve:

i. Cost Saving.

This is perhaps the most important criterion. Based on the financial statements, the Annual Operating Budget is about $4m. The objective is to harness substantial cost saving for the BQ/VQs' operation. In our evaluation, the savings can be broken down into two main areas:

a. Headcount/labor expenses
b. Other operations costs

ii. Safeguards Against Wasteful Authorization.

This concerns authorization discrepancy. Financial accountability and the authorization of off-base accommodation is an essential aspect of trimming wasteful cost. However, while the extent of authorization discrepancy is apparent and numerous, there is an absence of data on the actual financial wastages. Thus, the robustness of the new solution against such wastage is important. The new solution must have the ability to police the authorization process to ensure zero non-compliance and check and balances to ensure that the process and systems in-placed cannot be circumvented. These safeguards can manifest in two forms:

a. Processes
b. Systems

iii. Performance Improvement.

A mix of performance matrices, benchmarking guide and industrial best practices may be used to assess the optimal level of performance. Performance improvement could also be derived through analysis of current and projected performance.

iv. Customer Satisfaction.

From the perspective of the Navy's commitment to upkeep the standard of living and morale of the troop, customer satisfaction is a critical indicator. This is a projected level based on analysis, but ought to be verified by surveys conducted before and/or after the implementation. This mainly concerns with the living conditions and service quality at the BQ/VQs (even without the front desk manager).

v. Implementation Timeframe.

Implementation timeframe is an element towards deciding the alternatives as this must work in congruence with the bigger organizational goal. Essentially, CNRNW is looking at the substantial cost saving being derived within 2-3 years to meet the immediate goals of generating the investment capital for programs in the near future. Longer term solution would yield the optimal solution in the long term and is not precluded.

vi. Implementation Cost.

Implementation cost is needed to ensure that there is a real net saving. Many IT projects require upfront investment based on projected savings that may not be realized. It is important to prevent this from happening, and hence important criteria to ensure that real net savings can be derived from the solution. The implementation cost can be categorized into the following:

a. Project Management Cost
b. Infrastructure Cost
c. Systems Cost (if new IT systems must be delivered)
d. Training Cost

vii. IT Integration.

The level of IT integration will determine the portability and wholesomeness of the solution. It has to consider the following factors:

a. Usage of the NMCI backbone
b. Accessibility
c. Single Access System

viii. Standardization of service.

The adopted alternative or alternatives must ensure that the BQ/VQs to provide a uniform service navy wide.

VIII. ALTERNATIVES EVALUATION

Evaluation

A Matrix Assessment System (MAS) is used to evaluation the various alternatives. See the attached matrix in Appendix I for the MAS for evaluating the various alternatives. The various alternatives are listed on the top. These include:

a. Cost Trimming
b. Performance Improvement
c. Organizational Restructuring
d. New Business Model with IT
e. New Business Model with IT, plus organizational restructuring.

Note: The criteria that the various alternatives to be evaluated against are listed on the left, and as listed above. Each criterion would be given a weight to be assigned/concurred by the evaluator. Some preliminary weights are assigned as shown. Each criterion is measured on a scale of 1-5, with 1 being the worst and 5 being the best outcome.

Analytic Hierarchy Process

Alternatively, a more detailed evaluation can be conducted using the AHP or Analytical Hierarchical Process. This process uses the pair-wise comparison methodology to ascertain the final weightage. This evaluation process if done thoroughly usually takes from a couple of weeks to months. It usually involved reiterative processes so that the weight can be more impartially assigned and involving cost only at the last stage so that the weight can be assigned independently from cost.

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IX. BEST FEASIBLE ALTERNATIVE

Introduction and Background

Throughout our process of analysis we were trying to arrive at a single, specific solution for Navy Region Northwest's Bachelor Housing. Given the Commander's desired goal to; "become a better business" and to provide an enterprise-wide solution that enhances the efficiency and effectiveness (i.e., the ROI) of the management and operations of its bachelor quarters in order to provide a seamless Information Technology (IT), e-commerce solution that provides the customer the highest levels of service and satisfaction, while simultaneously reducing the financial overhead associated with the current infrastructure, we have painstakingly examined a number of feasible solution alternatives in order to arrive at our decision. Additionally given our desired outcomes of: Cost Reduction, Waste Eradication, Integration of Information Technology, Improved Customer Service, and Standardization of Services in addition to our defined areas of criteria analysis has produced findings that the most effective enterprise solution alternative for CNRNW's Bachelor Housing was to generate a new business model that centered on the interface of a new Kiosk-based technology coupled with the complete integration of the existing Information Technology (IT) infrastructure of the organization and a web-based management and On-Line reservation system.

The "As-is" Analysis

The "As-is" Analysis is provided to give the current stat of the NRNW's current financial position. It establishes the basis for our cost comparison for both the region and our Navy-wide financial estimates. Currently the NRNW Bachelor Quarters generate roughly $3.1 million in room revenues annually.

The "To Be" Model

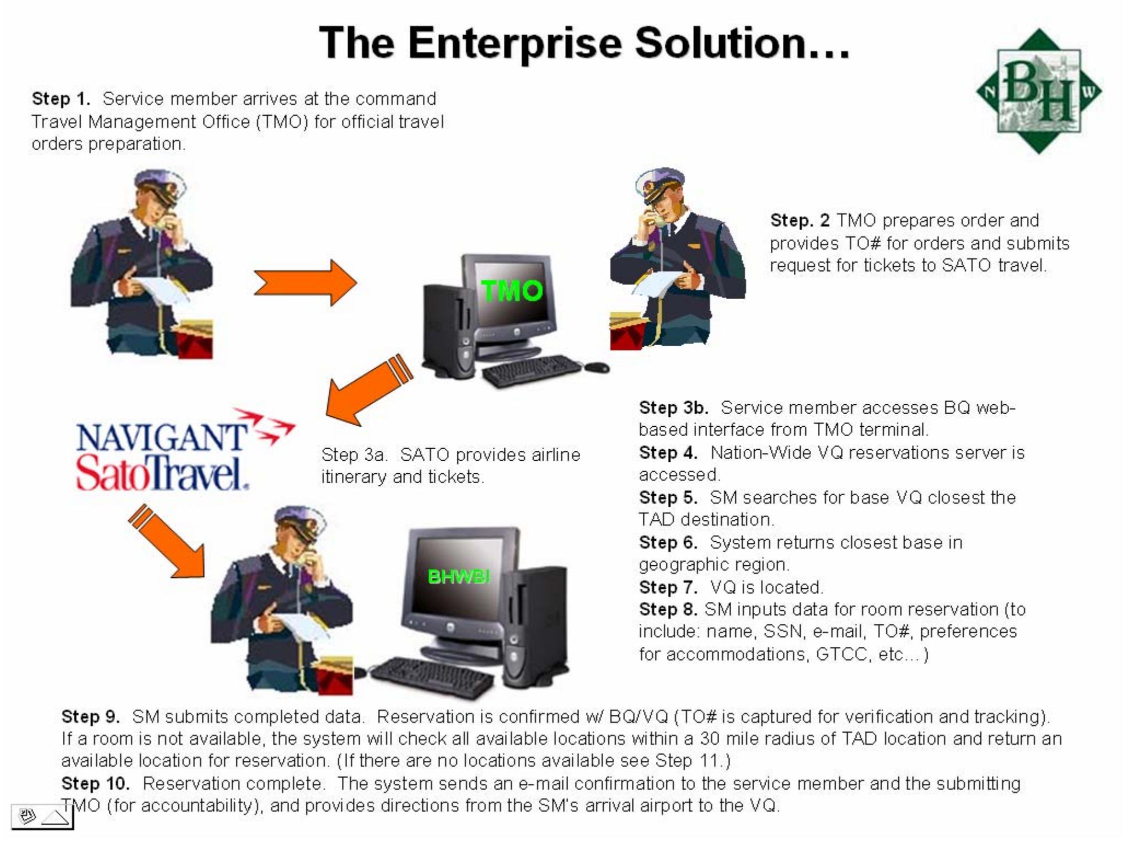
The "To-be" incremental model focuses on the Return-on-Knowledge (ROK) performance measurement for knowledge assets (human and information technology) with units of value – output in the numerator and costs to produce the outputs in the denominator, in other words what we plan to implement in order to optimize the process and what it will achieve. As we are still in the process of receiving the actual Fiscal Year 2003 financial reports for the region's utilization, we can only provide an estimated ROK outline for BQ/VQ operations.

Identify "Risks Associated"

The risks associated with the implementation of the enterprise solution are essentially the same risks that the organization faced with the implementation of previous initiatives. A few of these risks are: Change fatigue and resistance to more change, DoN/DoD policy may not be adaptable to revolutionary change, Organizational bureaucracy may stifle innovation of new acquisition methods, and the NMCI infrastructure may limit the ability and potential benefits of the technological enhancement. In order for this program to be successful the risks must be carefully weighed and addressed throughout the entire process.

Recommendation(s) for the New Enterprise Solution.

The following diagrams depict the process flow for the enterprise solution:



The Enterprise Solution…

Step 1. Service member arrives at the command Travel Management Office (TMO) for official travel orders preparation.

Step. 2 TMO prepares order and provides TO# for orders and submits request for tickets to SATO travel.

Step 3a. SATO provides airline itinerary and tickets.

Step 3b. Service member accesses BQ web-based interface from TMO terminal.

Step 4. Nation-Wide VQ reservations server is accessed.

Step 5. SM searches for base VQ closest the TAD destination.

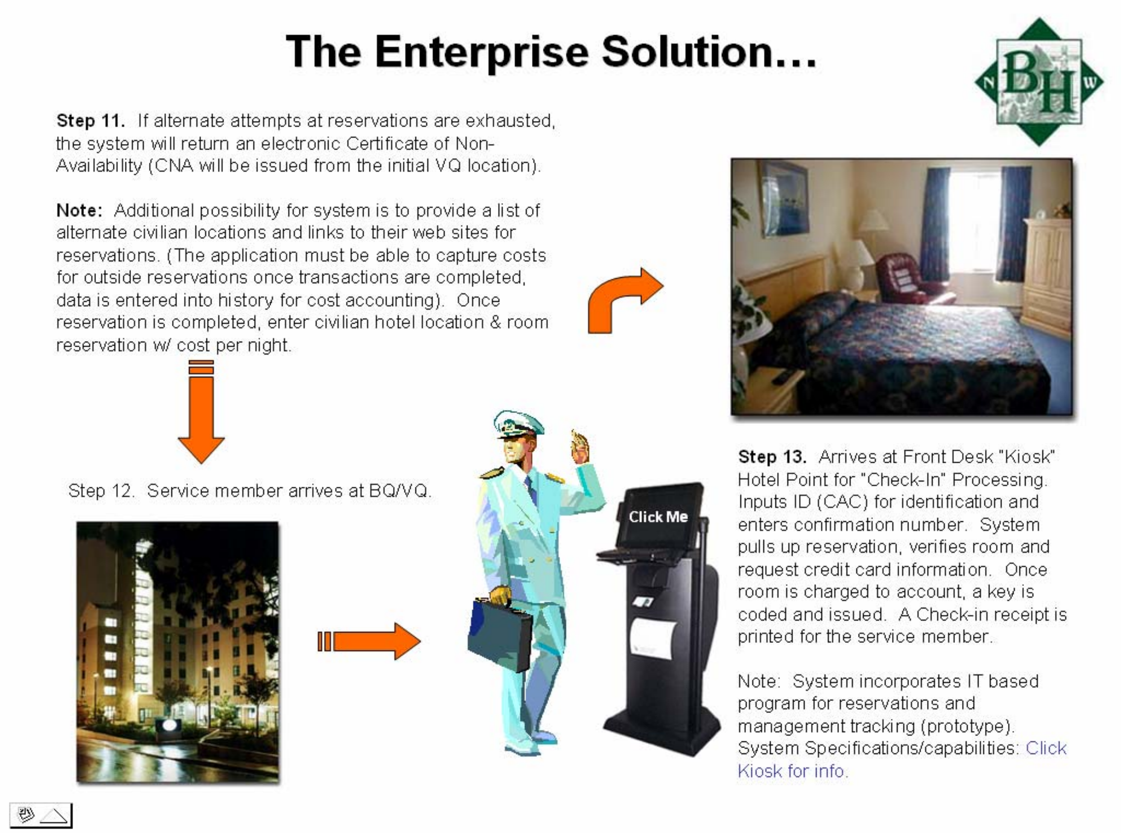
Step 6. System returns closest base in geographic region.

Step 7. VQ is located.

Step 8. SM inputs data for room reservation (to include: name, SSN, e-mail, TO#, preferences for accommodations, GTCC, etc…)

Step 9. SM submits completed data. Reservation is confirmed w/ BQ/VQ (TO# is captured for verification and tracking). If a room is not available, the system will check all available locations within a 30 mile radius of TAD location and return an available location for reservation. (If there are no locations available see Step 11.)

Step 10. Reservation complete. The system sends an e-mail confirmation to the service member and the submitting TMO (for accountability), and provides directions from the SM's arrival airport to the VQ.



The Enterprise Solution…

Step 11. If alternate attempts at reservations are exhausted, the system will return an electronic Certificate of Non-Availability (CNA will be issued from the initial VQ location).

Note: Additional possibility for system is to provide a list of alternate civilian locations and links to their web sites for reservations. (The application must be able to capture costs for outside reservations once transactions are completed, data is entered into history for cost accounting). Once reservation is completed, enter civilian hotel location & room reservation w/ cost per night.

Step 12. Service member arrives at BQ/VQ.

Step 13. Arrives at Front Desk "Kiosk" Hotel Point for "Check-In" Processing. Inputs ID (CAC) for identification and enters confirmation number. System pulls up reservation, verifies room and request credit card information. Once room is charged to account, a key is coded and issued. A Check-in receipt is printed for the service member.

Note: System incorporates IT based program for reservations and management tracking (prototype). System Specifications/capabilities: Click Kiosk for info.

The Enterprise Solution…

Step 14. Service member's stay is completed, arrives at kiosk for "Check-Out". Insert ID (CAC), identity is verified and the room charges are ran, validated and displayed. The printout itemizes the receipt and prompts the service member for return of the key.

Step 15. The service member completes their TAD travel and returns to their originating TMO for processing of travel claim.

SeePoint has integrated industry leading key encoders into our line of freestanding kiosk appliances. The result is a reliable, durable and attractive self-check in system with a very small footprint.

- **Generate electronic keycards**
- **Reserve rooms & accept payments**
- **Replace lost and damaged keys**
- **Key drop off location**
- **Print receipts and coupons**
- **Provide concierge services**

  Print Maps
  Print Coupons
  Make Reservations
  Find Entertainment Options

Model shown has 15" touch screen computer, keyboard, full size printing, card reader and key encoder.

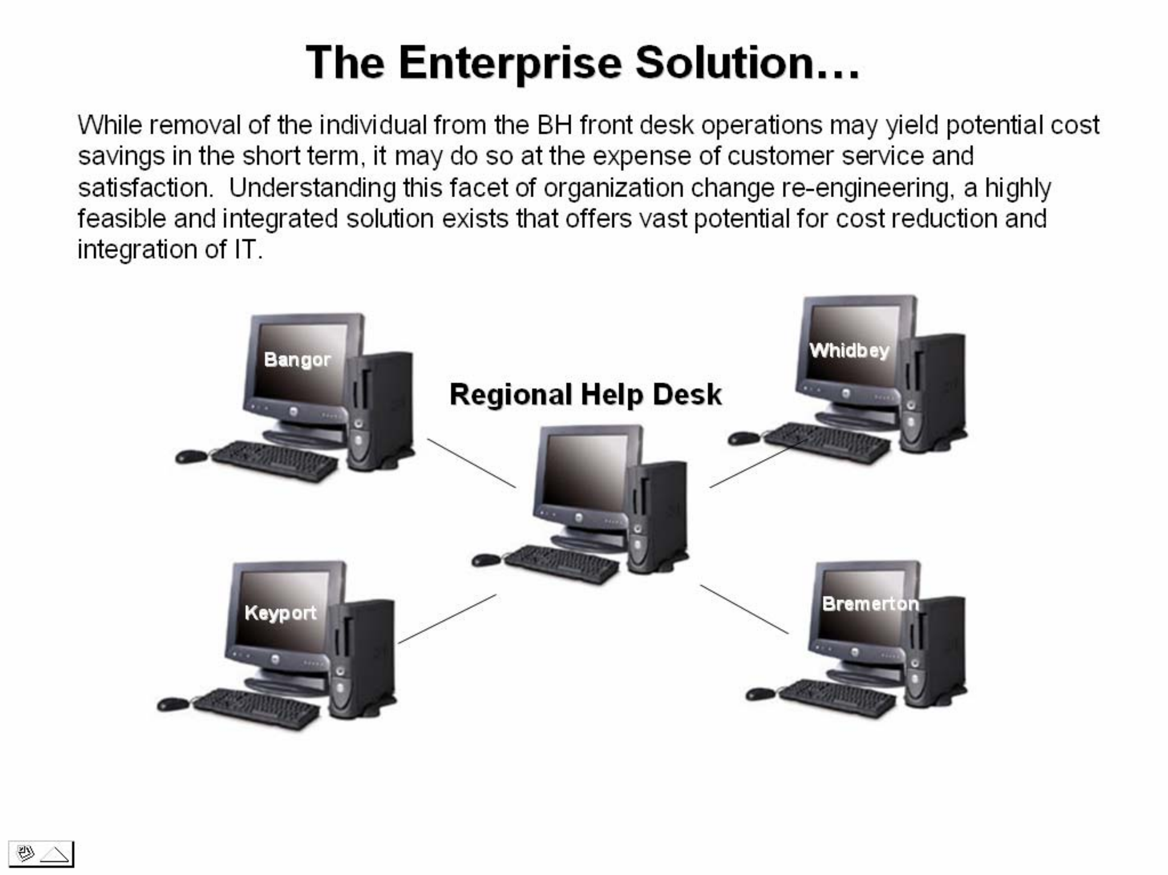
The HotelPoint kiosk provides your guests with hassle-free, high speed, self-service check-in and checkout as well as other concierge services.

HotelPoint kiosks accept credit card payments, automatically encode and vend keycards and print receipts in an 8.5" or 3.5" paper format.

Give your customers the faster service that travelers are demanding by adding a HotelPoint kiosk to your lobby.

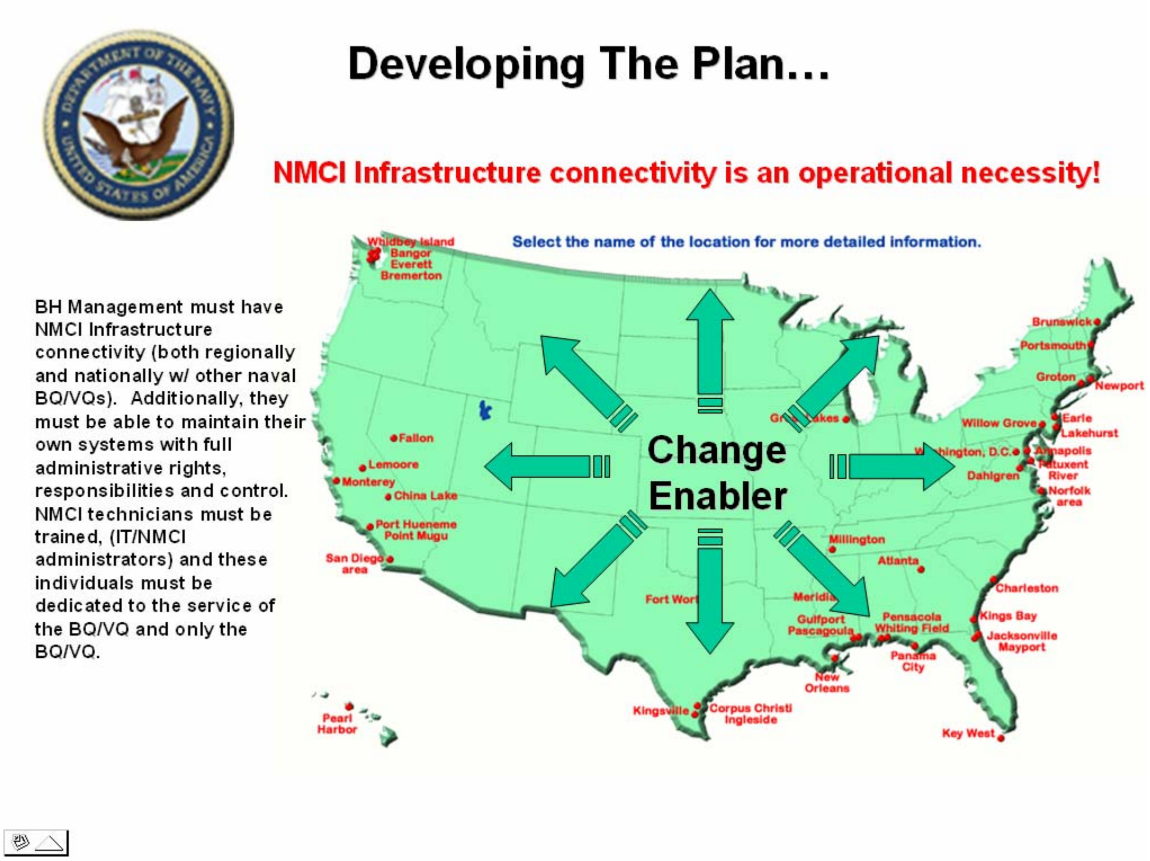
The Consolidated Regional Help Desk Concept

To a great extent efficiencies may be gained through the concept of the regional consolidation of the front desk operations. Our proposal consists of creating a regional help desk to service the needs of the customer. An operator at a central location can access any VQ’s operational systems via a video link that is embedded in each of the base VQ’s kiosks. The service representatives can access the reservations and management systems with the capability to override transactions, manipulate reservations, call for maintenance, re-assign rooms and assist with other situations that dictate the need to alter an existing arrangements (just to name a few functional items), and in case of emergency, alert the appropriate authorities for response.



The Enterprise Solution…

While removal of the individual from the BH front desk operations may yield potential cost savings in the short term, it may do so at the expense of customer service and satisfaction. Understanding this facet of organization change re-engineering, a highly feasible and integrated solution exists that offers vast potential for cost reduction and integration of IT.



Developing The Plan…

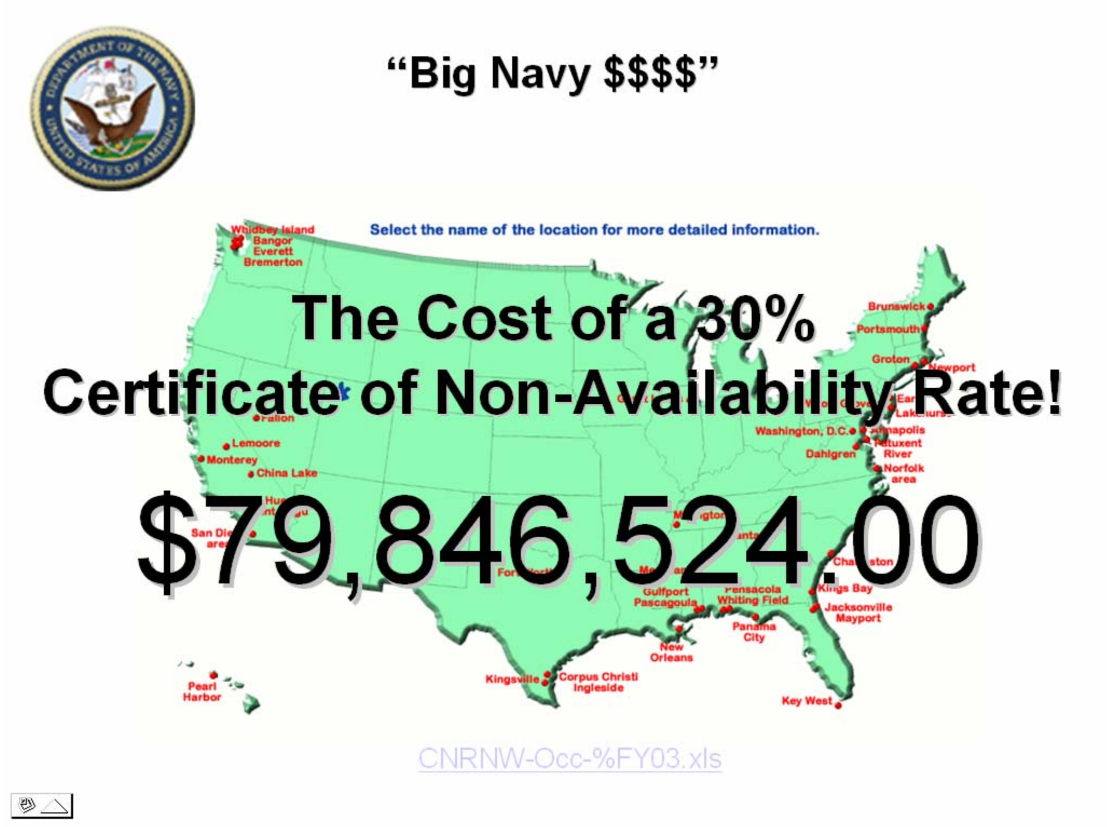
NMCI Infrastructure connectivity is an operational necessity!

BH Management must have NMCI Infrastructure connectivity (both regionally and nationally w/ other naval BQ/VQs). Additionally, they must be able to maintain their own systems with full administrative rights, responsibilities and control. NMCI technicians must be trained, (IT/NMCI administrators) and these individuals must be dedicated to the service of the BQ/VQ and only the BQ/VQ.

Select the name of the location for more detailed information.

Revenue assumptions/projections. *(Aggregate Cost Projections/Estimates)*

Utilizing extremely conservative figures for estimation purposes; given an estimated 30% annual rate of Certificate of Non-Availability being issued across all 8 Navy regions in the continental United States, and an average room rate for $69.00 per day for civilian hotels, at a minimum the Navy's TAD budget expenses exceed $80 million dollars per year!



“Big Navy $$$$”

The Cost of a 30% Certificate of Non-Availability Rate!

$79,846,524.00

CNRNW-Occ-%FY03.xls

Our enterprise solution process is designed to eliminate the erroneous issuance of Certificates of Non-Availability that have plagued the bachelor housing’s existing link with SATO for validation of official travel for lodging within the VQ. It is through these measures that the Navy may re-capitalize funds from its supporting agencies and return them to much needed operational programs, which coincides with the current Chief of naval Operations’ Fleet Readiness Plan.

X. THE PLAN AND ITS IMPLEMENTATON

Introduction

We have decided to propose an aggressive implementation timeline in order to facilitate the acquisition and implementation of current technology while it is still relevant in the application we are proposing. An additional aspect of our 2 year timeline takes into consideration that the acquisition process which includes: the contractor/vendor selection and bidding process, the software development cycle, the NMCI approval process and a host of other bureaucratic intensive process. As we are all familiar with the amount of time and paperwork it takes to implement such a change in the Department of Defense (DoD), it is not uncommon that most programs of this magnitude are scheduled in the 4-10 year timeline. What we propose is not only a revolutionary change in the enterprise of bachelor housing management, but it also suggests a change in the way we acquisition new programs. We feel that the flexibility of the organization’s decision to choose the best possible vendor/contractor to fulfill the organization’s requirements may not always be the most cost effective means, but it does provides the Navy with the desired with the desired outcome and the biggest return on its investment dollar.

Communicating the Change

Communicating the change is perhaps the most critical element in the change management aspect of implementing the enterprise solution. It is here were the entire organization must be on one accord in order to ensure the success of the program. Areas in which we must strictly focus our efforts consist of detailed interaction with all of the stakeholders in the system to ensure they have a thorough understanding of the systems, processes, inputs and outputs of their enterprise solution. In doing so we must ensure that the following measures are completed and communicated effectively:

- Re-engineering of job descriptions and responsibilities within the new systems.
- Department of the Navy (DoN) Policy must change in order to support enterprise solution.
- New Information System and System Interface training must be extensive
- Training Sessions (Top, Mid-Level, Lower Management, Operators, all players…build training program, possibility to integrate new training in formal schools for Naval Mess Specialists (MS) to compliment the current customer service training they now receive).

The Timeline

The timeline was drafted to provide a comprehensive look at the overall requirements of the project in definitive areas. As previously stated we desire to implement an aggressive 2 year plan in order to capitalize on the current direction change in the Navy’s new direction in the form of the Sea Power 21 vision. Our areas of focus are as follows:

- Project Proposal and Prototype delivery
- Project Funding Acquisition
- Proof of Concept Acquisition (Kiosk Technology)/Pilot
- Contract of Vendor/Contractor for Production of Integrated Software Solution

- Navy-Marine Corps Internet Migration
- Draft DoN Bachelor Housing Policy Changes
- Implementation Plan for Training Program Development
- Organization-Wide Systems and Interface Training
- NRNW Fully Operational
- Incremental Navy-Wide Regional Migration to Enterprise Solution

Timeline: (3-6 month plan, 6-9, 9-12, beyond year one) The Enterprise Roadmap.

XI. RECOMMENDATIONS

Our recommendations are:

Solution for near term implementation…

Based on the evaluation criteria, adopt the new business model with IT integrated solution for near term implementation. As with the implementation of any new technologies, policies and or systems for organizational change, there is always a measure of uncertainty or a fear of the unforeseen. Throughout our analysis we have conducted an in-depth study on the organizational processes, the actors, and the major internal and external forces that attribute to the organization's current state. It is here that we identified issues that require further attention and resolution in order to provide for the success of not only the implementation phase of the operation, but the successful and continuous operation of the enterprise solution Navy-wide. The additional recommendations are submitted for consideration and organizational review/action:

a. In order to achieve the enterprise solution it is absolutely critical that the Navy-Marine Corps Internet infrastructure (connectivity both regionally and nationally with other naval bachelor quarters) be in place and fully functional. Bachelor Quarters management must be able to maintain their own systems with full administrative rights, responsibilities and control. NMCI technicians must be (IT/NMCI administrators) trained on the enterprise solution, and these individuals must be dedicated to the service of the VQ, and only the VQ.

b. A caveat on the previous point on NMCI infrastructure is the fact that bachelor housing cannot compete with the same requirements and needs as Navy operational units. If there is a failure in the NMCI infrastructure for the VQ at the same time as there is a shutdown of NMCI infrastructure for a critical operational unit, the operational unit will always take precedence. It would be highly beneficial if the Navy-wide bachelor housing information infrastructure could ride on a separate "network" from the Navy's operational shore commands. This would allow for the self-administration and maintenance of the bachelor housing's technical infrastructure by "NMCI qualified and trained technicians" that are currently resident within the existing housing infrastructure. This initiative would entail the current system administrators and technician staff to become certified by NMCI.

c. Commercial Off-The-Shelf (COTS) products, in the form of Kiosks, are essential for implementation of the enterprise solution; however the interface application must be tailored to the specific nature of the VQs. The current interface "Lodging Touch'" was specifically designed for the hotel industry and does not completely conform to the unique requirements of bachelor housing. We can no longer try to make an application fit the organization, instead the application has to be designed based upon the specific needs, requirements and functions organization and its users. We recommend that our final Web-Based product be developed by a software development company/vendor like Management Information Systems (MIS) that creates tailor-made applications for organizations. It is critical that the software design be engineered to allow for constant process improvement, and to be both flexible and scalable in order to implement expansion/modification of future technology and capabilities.

d. SATO travel currently has electronic transmission and receipt of reservations with many VQs across the Continental United States (CONUS). Sato may still be a viable option in the implementation of the enterprise solutions, however if we could remove them from the room reservation process and place the responsibility with the command's Travel Management Office (TMO) as part of the "orders process", it would insure that official travelers utilize the VQ to the fullest extent possible. This could be accomplished by offering a terminal that accesses the reservations website and utilizes the generated Travel Order number as verification of official travel. This means that the implemented system must have an interface or link with the current Travel Management System in order to validate the Travel Order number.

e. The enterprise solution must integrate all of the desired functionality of the current system "Lodging Touch" (to include the room stay data from all VQs), the possibility of the continued use of SATO in the reservations process, data integration with the Navy's Travel Management System, and a web-based interface that allows a user to access/search a geographical area for a specific VQ location, down to bldg, room type, amenities, complete reservations info, directions to bases, etc…in other words, "One stop Shopping." The possibility for the creation of a more specific, VQ tailored management application may be a necessity. That being stated the need to create another legacy application for bachelor housing may exist. Legacy systems still remain a viable option in some cases, however in this solution it should be carefully weighed against other options and measured as a force multiplier. If all other potential alternatives and possibilities are exhausted, it should be considered as a final option.

Solution for implementation in the longer term…

a. For the long term, with organizational re-structuring to better align with the organization's strategic gravitation towards mission-criteria areas, leaving the non-mission critical support areas to more focused and efficient organization with out compromising the service quality of the community programs.

b. To examine the restructuring options to harness greater saving and alignment with long term strategic goals.

c. Review the land-sea or peacetime-wartime establishment matching, particularly for the military billet in BQ/VQ management.

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LIST OF APPENDICIES

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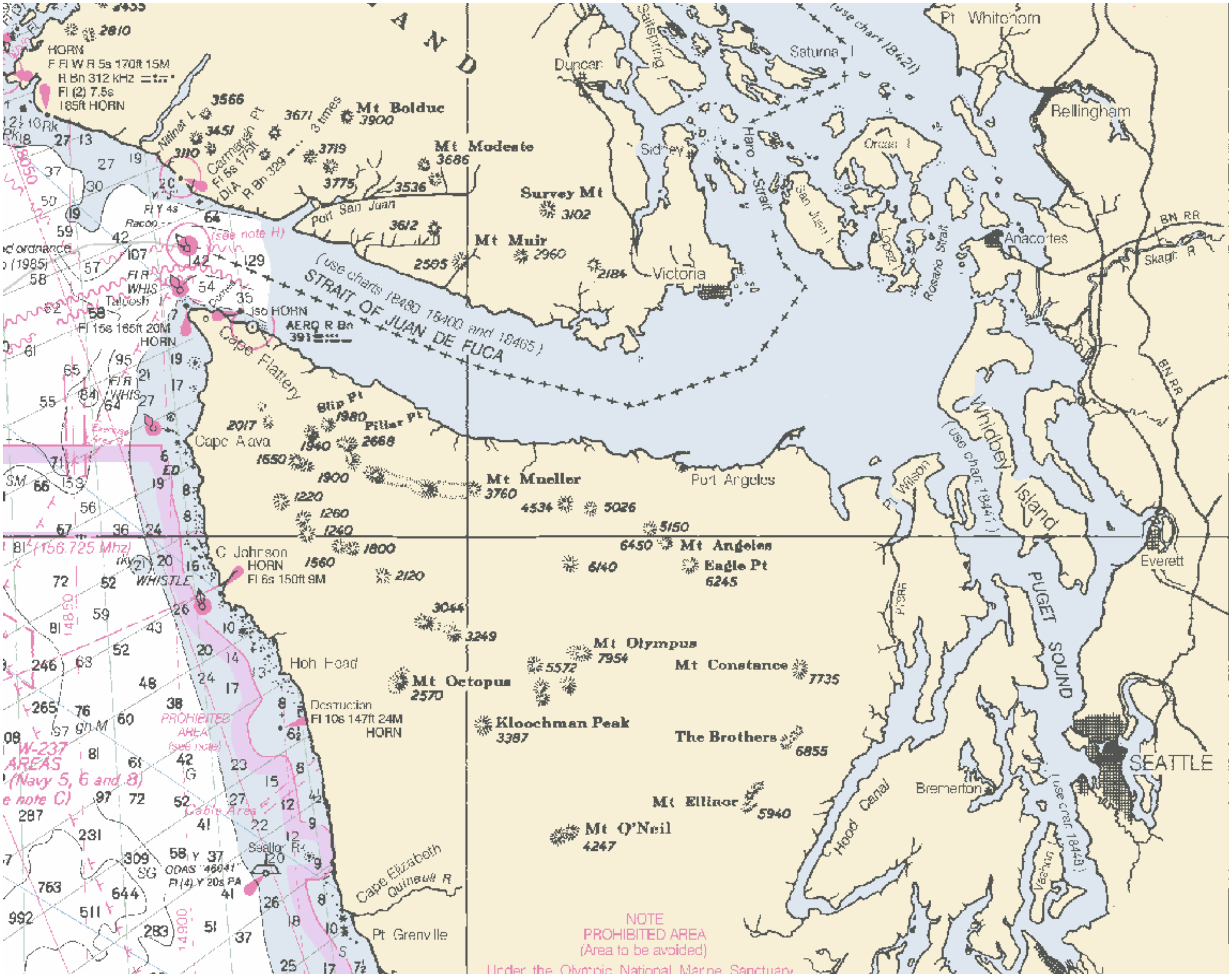
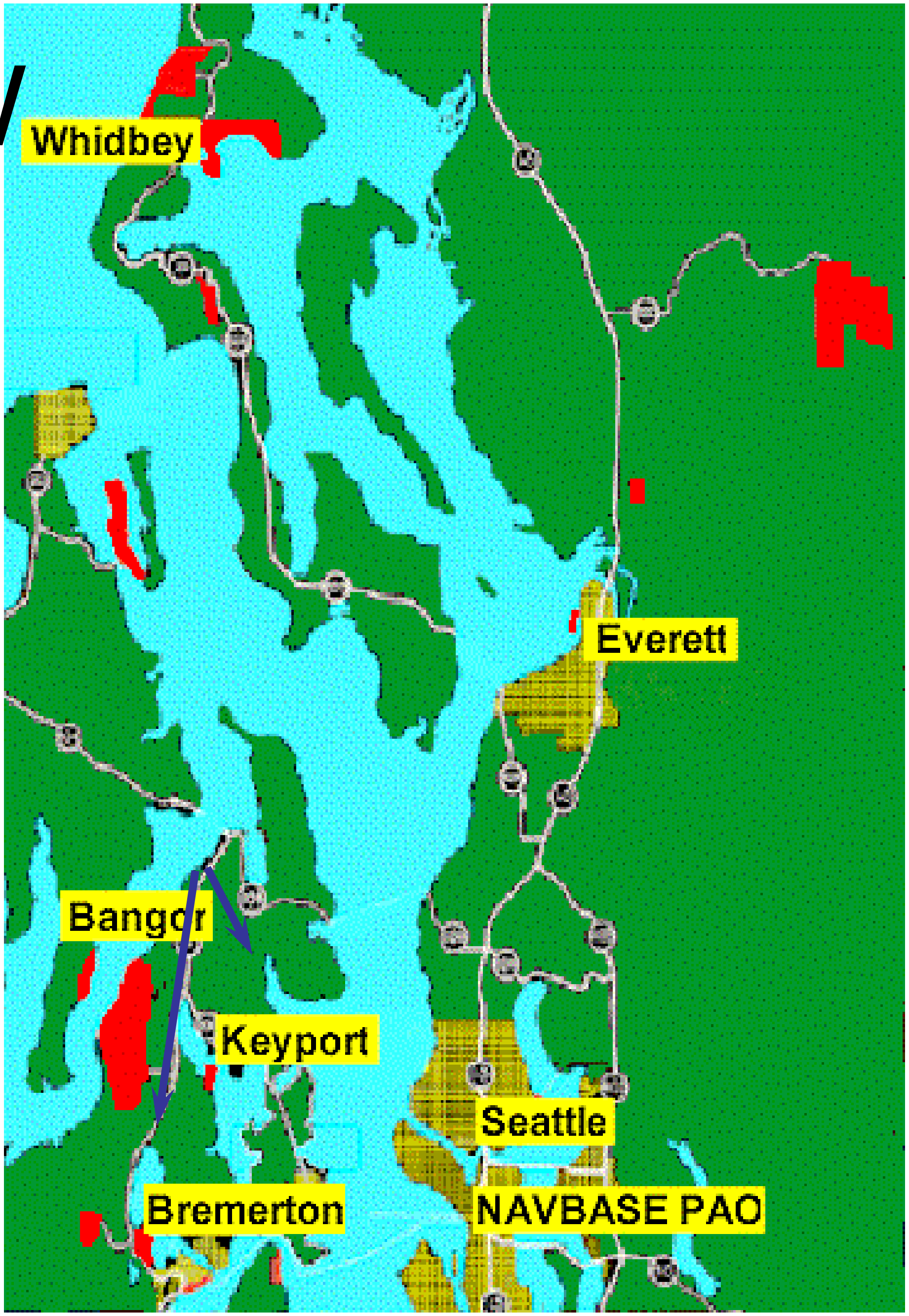
Appendix A – Navy Region North West



NRNW



2.5 - 3 hours
Bangor to

15 minutes
Bangor to

30 minutes
Bangor to

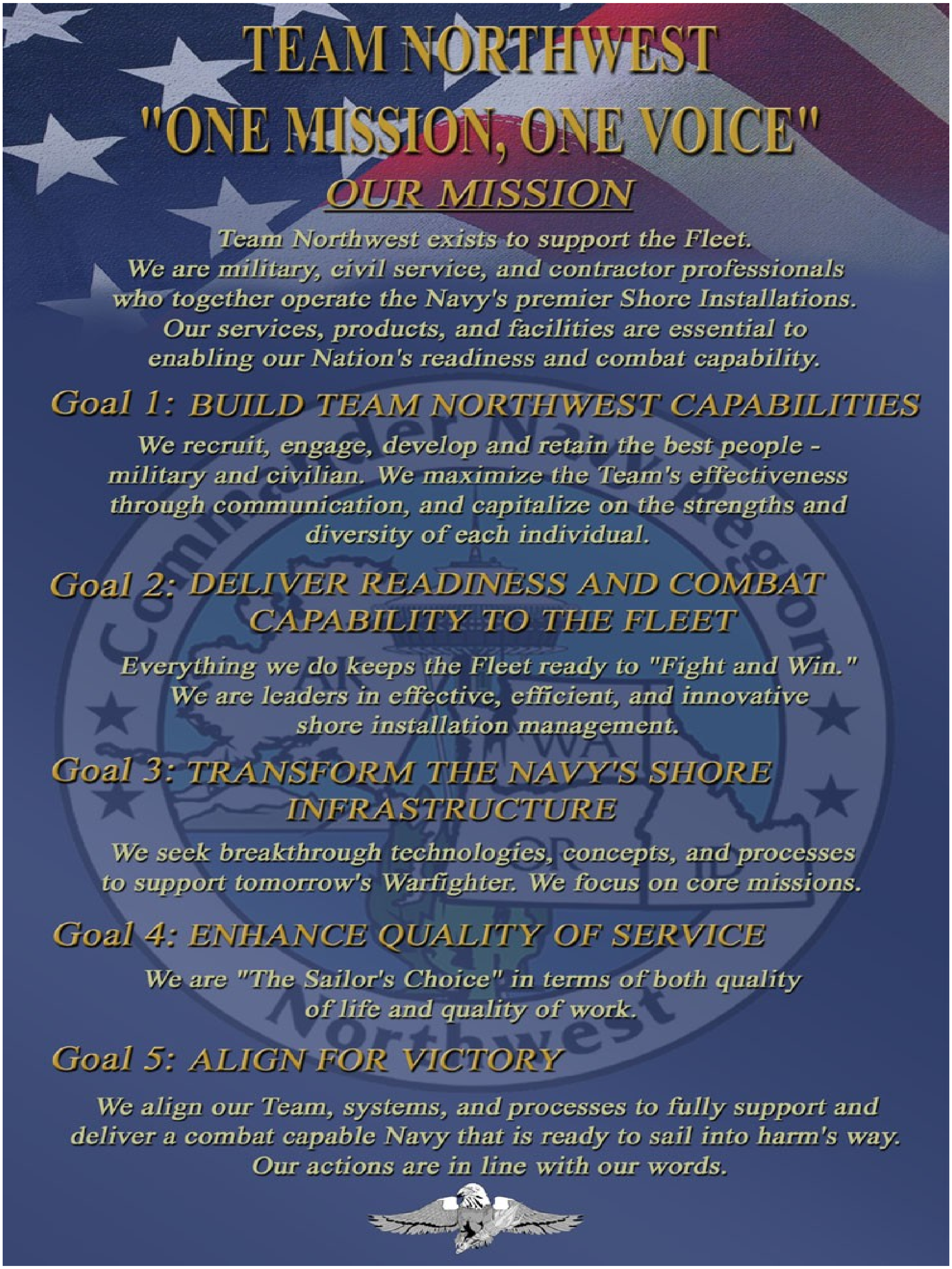
1 hour
Whidbey to

2 hours
Bangor to

1 hour
Seattle to

2 hours
Bangor to

Appendix B – Organization Mission



TEAM NORTHWEST
"ONE MISSION, ONE VOICE"

OUR MISSION

*Team Northwest exists to support the Fleet.
We are military, civil service, and contractor professionals
who together operate the Navy's premier Shore Installations.
Our services, products, and facilities are essential to
enabling our Nation's readiness and combat capability.*

Goal 1: *BUILD TEAM NORTHWEST CAPABILITIES*

We recruit, engage, develop and retain the best people - military and civilian. We maximize the Team's effectiveness through communication, and capitalize on the strengths and diversity of each individual.

Goal 2: *DELIVER READINESS AND COMBAT CAPABILITY TO THE FLEET*

Everything we do keeps the Fleet ready to "Fight and Win." We are leaders in effective, efficient, and innovative shore installation management.

Goal 3: *TRANSFORM THE NAVY'S SHORE INFRASTRUCTURE*

We seek breakthrough technologies, concepts, and processes to support tomorrow's Warfighter. We focus on core missions.

Goal 4: *ENHANCE QUALITY OF SERVICE*

We are "The Sailor's Choice" in terms of both quality of life and quality of work.

Goal 5: *ALIGN FOR VICTORY*

We align our Team, systems, and processes to fully support and deliver a combat capable Navy that is ready to sail into harm's way. Our actions are in line with our words.

Appendix C - Statistical Summary and Organizational Overview

Regional Personnel Statistics

Navy: 26,934
Civilian Employees: 15,614
Family Members: 80,000
Naval Reservists: 6,000

Regional Payroll

$2.9 Billion

Regional Operations Statistics

Aircraft Squadrons: 21
Aircraft: 110
Ships: 10
Aircraft Carriers: 2
Submarines: 9

Regional Personnel Statistics

Navy: 26,934
Civilian Employees: 15,614
Family Members: 80,000
Naval Reservists: 6,000

Regional Payroll

$2.9 Billion

Regional Operations Statistics

Aircraft Squadrons: 21
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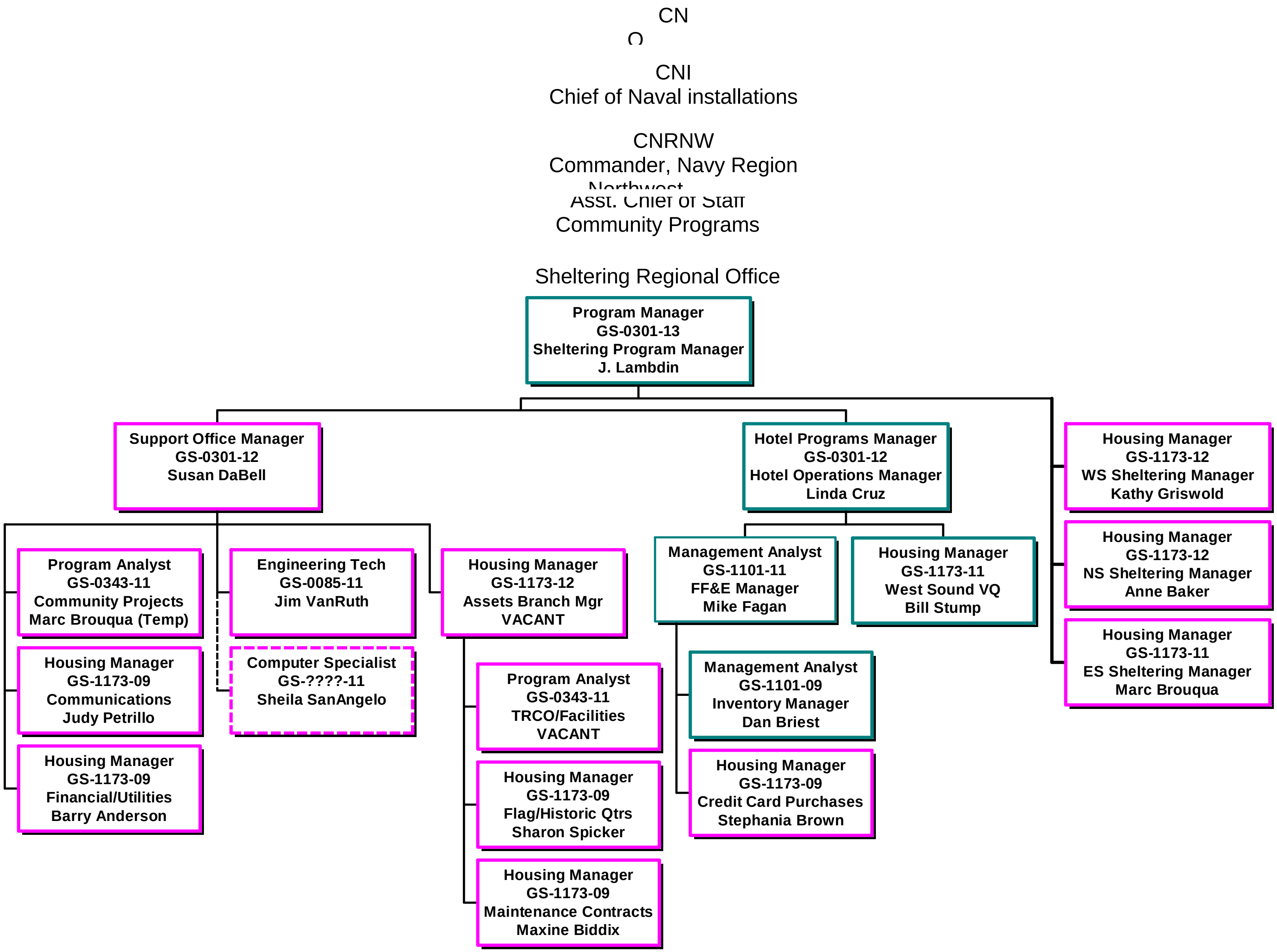
Appendix D – Organizational Structure



CN
O

CNI
Chief of Naval installations

CNRNW
Commander, Navy Region
Northwest

Asst. Chief of Staff
Community Programs

Sheltering Regional Office

Program Manager
GS-0301-13
Sheltering Program Manager
J. Lambdin

Support Office Manager
GS-0301-12
Susan DaBell

Program Analyst
GS-0343-11
Community Projects
Marc Brouqua (Temp)

Housing Manager
GS-1173-09
Communications
Judy Petrillo

Housing Manager
GS-1173-09
Financial/Utilities
Barry Anderson

Engineering Tech
GS-0085-11
Jim VanRuth

Computer Specialist
GS-????-11
Sheila SanAngelo

Housing Manager
GS-1173-12
Assets Branch Mgr
VACANT

Program Analyst
GS-0343-11
TRCO/Facilities
VACANT

Housing Manager
GS-1173-09
Flag/Historic Qtrs
Sharon Spicker

Housing Manager
GS-1173-09
Maintenance Contracts
Maxine Biddix

Hotel Programs Manager
GS-0301-12
Hotel Operations Manager
Linda Cruz

Management Analyst
GS-1101-11
FF&E Manager
Mike Fagan

Management Analyst
GS-1101-09
Inventory Manager
Dan Briest

Housing Manager
GS-1173-09
Credit Card Purchases
Stephania Brown

Housing Manager
GS-1173-11
West Sound VQ
Bill Stump

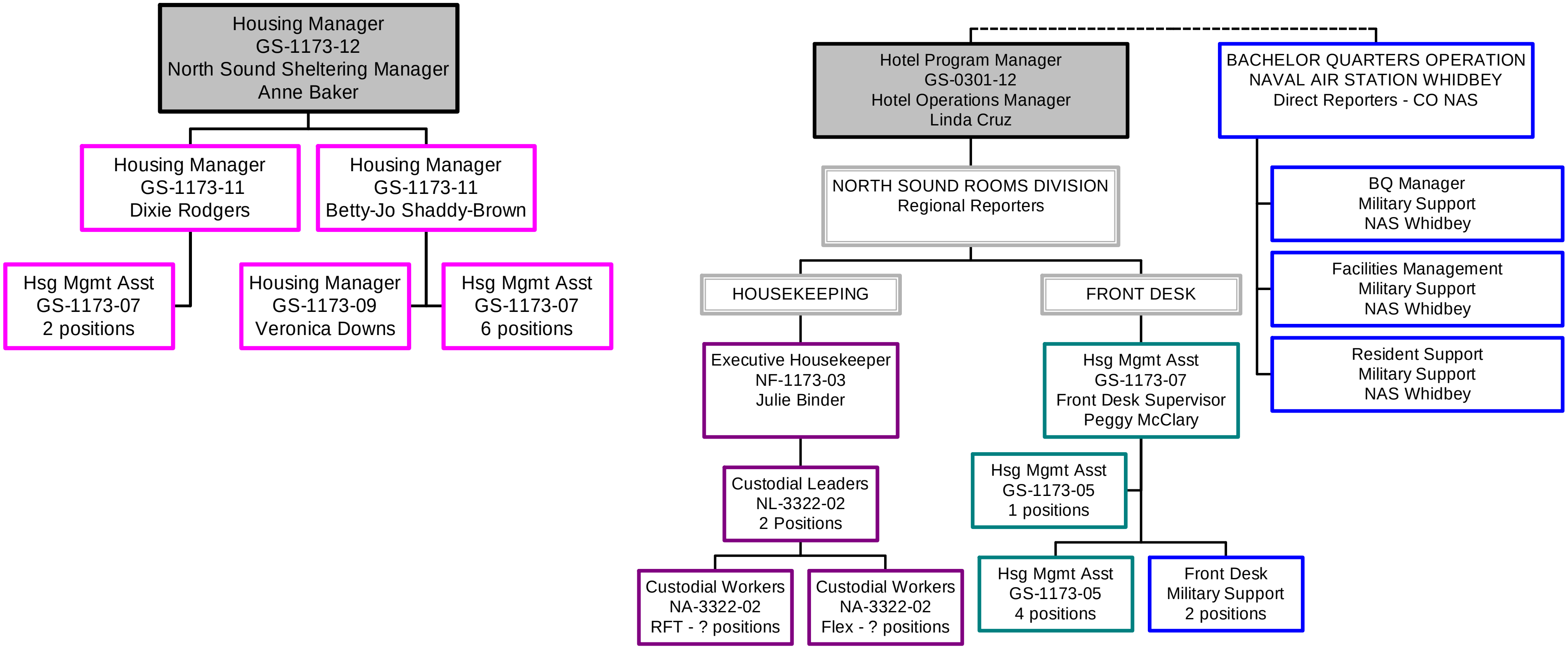
Housing Manager
GS-1173-12
WS Sheltering Manager
Kathy Griswold

Housing Manager
GS-1173-12
NS Sheltering Manager
Anne Baker

Housing Manager
GS-1173-11
ES Sheltering Manager
Marc Brouqua

Appendix D – Organizational Structure

North Sound Bachelor



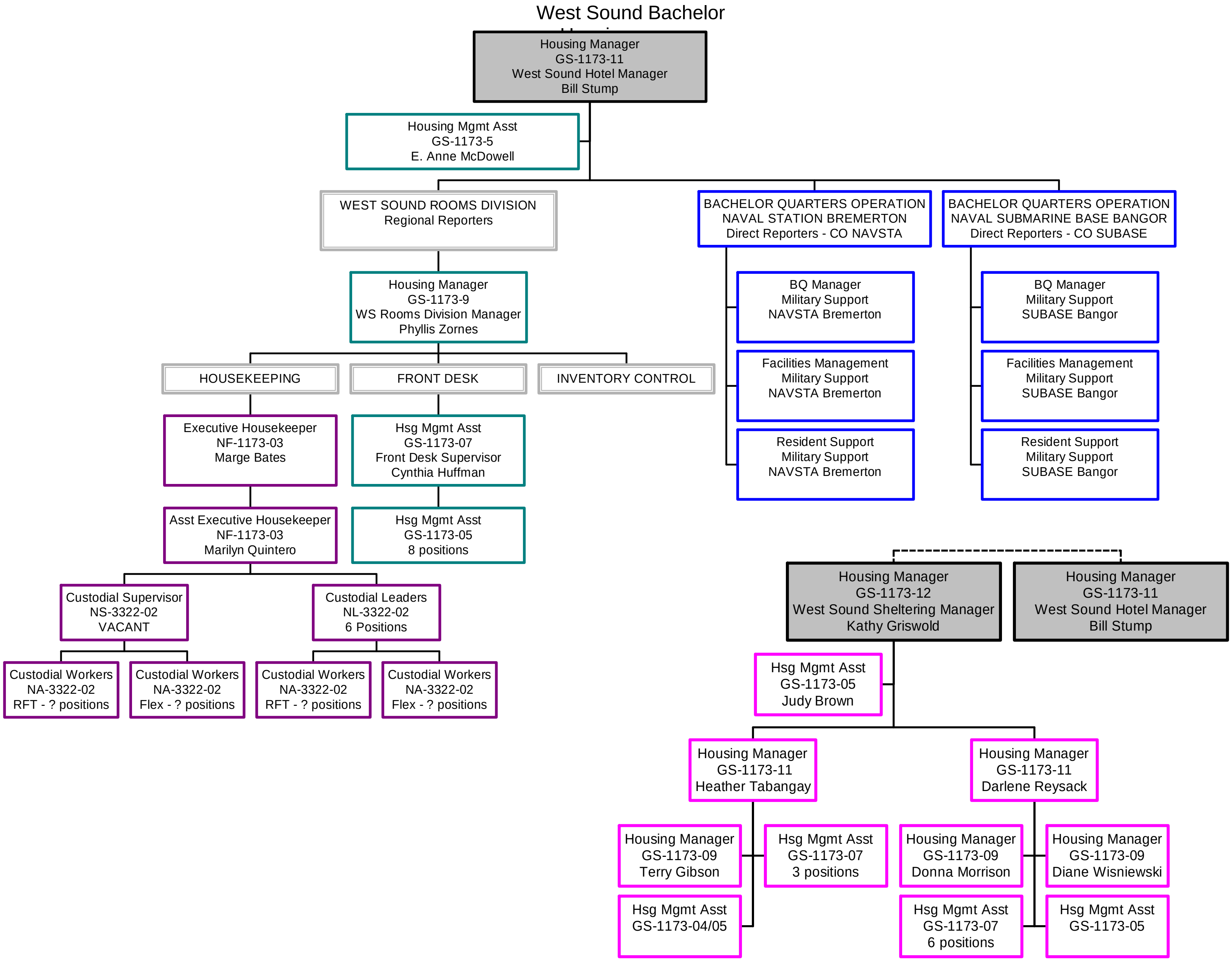
□ FH Civilian Positions

□ BH Civilian Positions

▨ FTE counted on previous chart

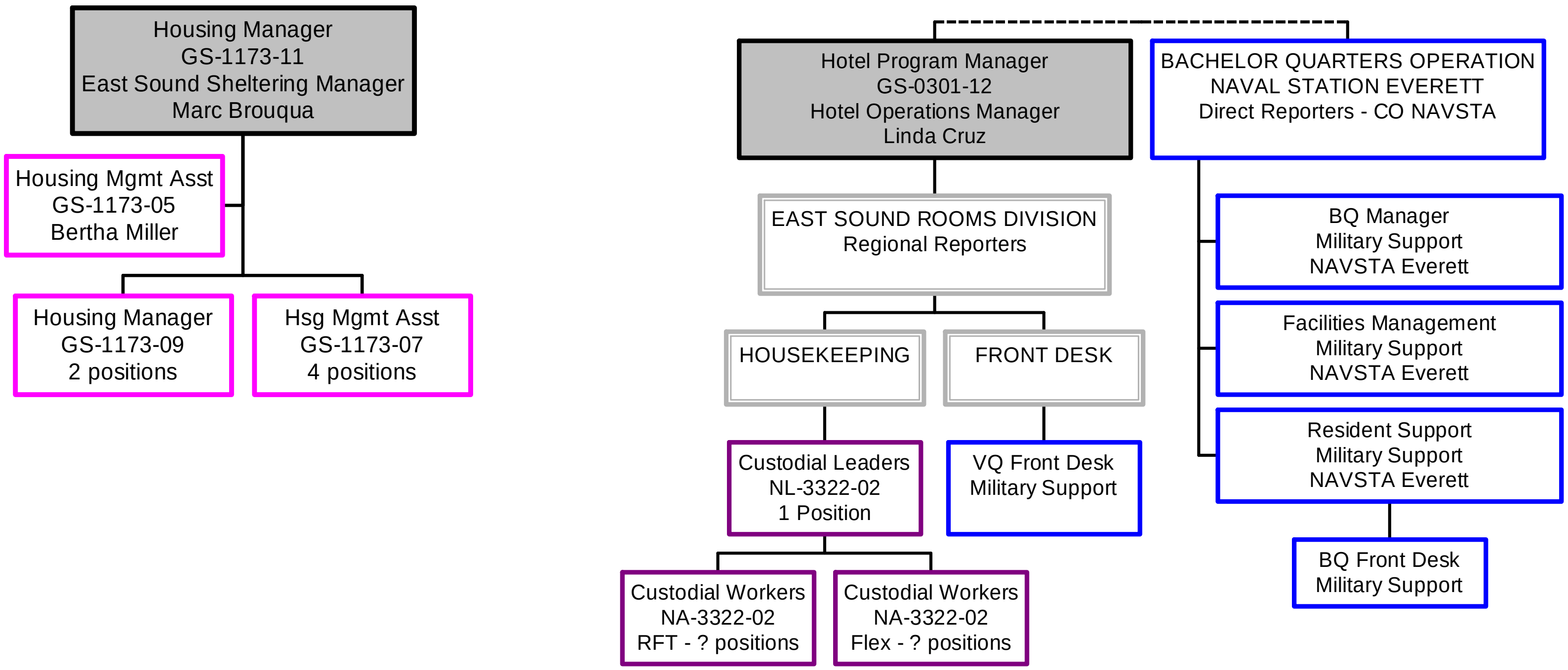
□ VQ NAF Positions

Appendix D – Organizational Structure


West Sound Bachelor Housing
Housing Manager GS-1173-11 West Sound Hotel Manager Bill Stump
Housing Mgmt Asst GS-1173-5 E. Anne McDowell
WEST SOUND ROOMS DIVISION Regional Reporters
BACHELOR QUARTERS OPERATION NAVAL STATION BREMERTON Direct Reporters - CO NAVSTA
BACHELOR QUARTERS OPERATION NAVAL SUBMARINE BASE BANGOR Direct Reporters - CO SUBASE
Housing Manager GS-1173-9 WS Rooms Division Manager Phyllis Zornes
BQ Manager Military Support NAVSTA Bremerton
Facilities Management Military Support NAVSTA Bremerton
Resident Support Military Support NAVSTA Bremerton
BQ Manager Military Support SUBASE Bangor
Facilities Management Military Support SUBASE Bangor
Resident Support Military Support SUBASE Bangor
HOUSEKEEPING
FRONT DESK
INVENTORY CONTROL
Executive Housekeeper NF-1173-03 Marge Bates
Asst Executive Housekeeper NF-1173-03 Marilyn Quintero
Hsg Mgmt Asst GS-1173-07 Front Desk Supervisor Cynthia Huffman
Hsg Mgmt Asst GS-1173-05 8 positions
Custodial Supervisor NS-3322-02 VACANT
Custodial Leaders NL-3322-02 6 Positions
Custodial Workers NA-3322-02 RFT - ? positions
Custodial Workers NA-3322-02 Flex - ? positions
Custodial Workers NA-3322-02 RFT - ? positions
Custodial Workers NA-3322-02 Flex - ? positions
Housing Manager GS-1173-12 West Sound Sheltering Manager Kathy Griswold
Housing Manager GS-1173-11 West Sound Hotel Manager Bill Stump
Hsg Mgmt Asst GS-1173-05 Judy Brown
Housing Manager GS-1173-11 Heather Tabangay
Housing Manager GS-1173-11 Darlene Reysack
Housing Manager GS-1173-09 Terry Gibson
Hsg Mgmt Asst GS-1173-07 3 positions
Hsg Mgmt Asst GS-1173-04/05
Housing Manager GS-1173-09 Donna Morrison
Housing Manager GS-1173-09 Diane Wisniewski
Hsg Mgmt Asst GS-1173-07 6 positions
Hsg Mgmt Asst GS-1173-05

Appendix D – Organizational Structure

East Sound Bachelor Housing



Housing Manager
GS-1173-11
East Sound Sheltering Manager
Marc Brouqua

Housing Mgmt Asst
GS-1173-05
Bertha Miller

Housing Manager
GS-1173-09
2 positions

Hsg Mgmt Asst
GS-1173-07
4 positions

Hotel Program Manager
GS-0301-12
Hotel Operations Manager
Linda Cruz

BACHELOR QUARTERS OPERATION
NAVAL STATION EVERETT
Direct Reporters - CO NAVSTA

EAST SOUND ROOMS DIVISION
Regional Reporters

HOUSEKEEPING

FRONT DESK

Custodial Leaders
NL-3322-02
1 Position

VQ Front Desk
Military Support

Custodial Workers
NA-3322-02
RFT - ? positions

Custodial Workers
NA-3322-02
Flex - ? positions

BQ Manager
Military Support
NAVSTA Everett

Facilities Management
Military Support
NAVSTA Everett

Resident Support
Military Support
NAVSTA Everett

BQ Front Desk
Military Support

□ FH Civilian Positions

□ BH Civilian Positions

■ FTE counted on previous chart

□ VQ NAF Positions

Appendix E – BQ/VQ Size

ACTIVITY: NAVY REGION NORTH WEST

Area	VQ	BQ	# Transient Rooms	# Transient Beds	# Perm Rooms	# Perm Beds	STYLE			
							1+0	1+1	2+0	2+2
Bremerton	6	1	814	1403	80	152	2	0	5	0
Bangor	3	18	115	127	648	1242	7	0	19	0
Keyport	0	2	0	0	53	86	0	0	2	0
Whidbey	2	11	212	212	1143	1707	2	2	8	0
Everett	2	2	180	207	220	231	1	2	3	0
TOTAL	13	34	1321	1949	2144	3418	12	4	37	0

VQ (Transient)

Area	VQ	BQ	# Transient Rooms	# Transient Beds
Bremerton	6		814	1403
Bangor	3		115	127
Keyport	0		0	0
Whidbey	2		212	212

ROOMS: 1321

BEDS: 1949

Everett	2		180	207
TOTAL	13		1321	1949

BQ (Permanent Party)

Area	VQ	BQ	# Perm Rooms	# Perm Beds
Bremerton		1	80	152
Bangor		18	648	1242
Keyport		2	53	86
Whidbey		11	1143	1707
Everett		2	220	231
TOTAL		34	2144	3418

ROOMS:	2144
BEDS:	3418

VQ Total	ROOMS:	1321	BEDS:	1949	BLDGS:	13
BQ Total	ROOMS:	2144	BEDS:	3418	BLDGS:	34
BOQ Total	ROOMS:	499	BEDS:	499	BLDGS:	7
BEQ Total	ROOMS:	2966	BEDS:	4868	BLDGS:	40

Distribution Sanity Check	3465	5367	47
	3465	5367	47

NAVY BH NAF Annual Operating Budget 1st Qtr

FY: **2002**

Instlltn: **COMNAVREGNORTHWEST** **RAMCAS:** **80172**

Claimant: **CINCPACFLT** **Region:** **NAVREGNORTHWEST** **Sub-Region:**

	Old Acct#	Revised Accounts - NAF Income *Consolidated*	New Acct#	BUDGET OCT	BUDGET NOV	BUDGET DEC	BUDGET 1st QTR
1	501-10	Room Revenue		262,468	254,002	242,752	**759,222**
2	501-10	Housekeeping Services - Permanent Party					
3	569-10	Other Income					
4	501-17	Services					
5	501-17	Linen					
6	501-17	Refreshments					
7	502-17	Rental - Audio/Visual					
8	502-17	Rental - Equipment					
9	502-17	Rental - Other					
10	301-03	Sundry Sales					
11	502-10	Rental - Video					
12	502-10	Rental - Equipment					
13	502-10	Rental - Other					
14	531-00	Contracted Services					
15	560-00	CBQ Telephone Revenue		9,300	9,300	9,300	**27,900**
16	592-13	Commission Income - Vending					
17	593-00	Commission Income - Recycling					
18	594-00	Commission Income - Rentals					
19	594-00	Commission Income - Other					
20		**Total Consolidated NAF Income**		**271,768**	**263,302**	**252,052**	**787,122**

21		**Total Consolidated NAF Expenses**		**262,352**	**257,168**	**260,228**	**779,747**
22		**Total Consolidated Profit / (Loss)**		**$9,417**	**$6,134**	**($8,176)**	**$7,375**
23		**Self- Sufficiency**		**3.5%**	**2.3%**	**-3.2%**	**0.9%**

Activity: **COMNAVREGNORTHWEST**

	Old Acct#	Revised Accounts - NAF Expenses *Consolidated*	New Acct#	BUDGET OCT	BUDGET NOV	BUDGET DEC	BUDGET 1st QTR
24	601-00	Salaries & Wages		80,054	80,054	80,054	**240,162**
25	602-00	Salaries & Wages - Local /Foreign National					
26	603-00	Employee Bonuses & Awards				3,750	**3,750**
27	604-00	Payroll Overtime Expense					
28	621-00	Employer's Share of FICA		6,004	6,004	6,004	**18,012**
29	622-00	Annual Leave Expense		3,809	3,809	3,809	**11,427**
30	623-00	Sick Leave Expense		1,904	1,904	1,904	**5,713**
31	625-00	Employee Benefits - Local/Foreign National					
32	626-00	Employee Benefits - Other					
33	629-00	Employer's Health Insurance Cost		1,371	1,371	1,371	**4,114**
34	630-00	Employer's Life/Disability Insurance		152	152	152	**457**
35	632-00	Employer's Retirement Plan Cost		1,143	1,143	1,143	**3,428**
36	633-00	Employer's Workman's Compensation Cost		3,522	3,522	3,522	**10,567**
37	634-00	Employer's Unemployment Compensation Cost		2,562	2,562	2,562	**7,685**
38		**Sub-Total Labor Expenses**		**100,522**	**100,522**	**104,272**	**305,316**
39	661-00	CBQ Telephone Expense		17,200	17,620	17,200	**52,020**
40	661-00	Postage					

41	662-00	Cable/Satellite Service		25,524	25,524	25,524	**76,572**
42	681-00	Repairs & Maintenance - Vehicles					
43	683-00	Repair & Maintenance FF&E					
44	686-00	Minor Property					
45	701-00	Consumable Cleaning Supplies		1,475	1,475	1,475	**4,425**
46	701-00	Linen, Toweling and Bedding		4,900			**4,900**
47	701-00	NAF Employee Uniforms		750		1,000	**1,750**
48	702-00	Non-Consumable Amenities		2,190	2,190	2,190	**6,570**
49	702-00	Consumable Amenities		27,665	28,250	27,540	**83,455**
50	703-00	Laundry/Dry Cleaning		225	225	225	**675**
51	721-00	Travel and Per Diem		500	300	500	**1,300**
52	741-00	Support Services					
53	781-00	Advertising and Promotion		250	250	250	**750**
54	782-00	Conferences and Training					
55	783-00	Contractual Expense		18,125	18,125	18,125	**54,375**
56	784-00	Credit Card Sales Expense		1,325	1,325	1,325	**3,975**
57	788-00	CBQ/Echelon Assessment		2,625	2,540	2,428	**7,592**
58	789-00	CBQ Headquarters Assessment		7,874	7,620	7,283	**22,777**
59	799-00	Miscellaneous Expense		24,650	24,650	24,340	**73,640**
60		**Sub-Total Other Expenses**		**135,278**	**130,094**	**129,404**	**394,776**
61		**Sub-Total Consolidated NAF Expenses**		**235,800**	**230,616**	**233,676**	**700,091**
62	76X-00	Depreciation Expense - Fixed Assets		26,552	26,552	26,552	**79,656**
63	401-00	Cost of Sundries Sold					
64		**Total Consolidated NAF Expenses**		**262,352**	**257,168**	**260,228**	**779,747**

NAVY BH NAF Annual Operating Budget 2nd Qtr

Instlltn: **COMNAVREGNORTHWEST**

Claimant: **CINCPACFLT**

	Old Acct#	Revised Accounts - NAF Income *Consolidated*	New Acct#	BUDGET JAN	BUDGET FEB	BUDGET MAR	BUDGET 2nd QTR	BUDGET FYTD
1	501-10	Room Revenue		282,804	343,226	391,588	**1,017,617**	**1,776,839**
2	501-10	Housekeeping Services - Permanent Party						
3	569-10	Other Income						
4	501-17	Services						
5	501-17	Linen						
6	501-17	Refreshments						
7	502-17	Rental - Audio/Visual						
8	502-17	Rental - Equipment						
9	502-17	Rental - Other						
10	301-03	Sundry Sales						
11	502-10	Rental - Video						
12	502-10	Rental - Equipment						
13	502-10	Rental - Other						
14	531-00	Contracted Services						
15	560-00	CBQ Telephone Revenue		12,630	12,630	12,630	**37,890**	**65,790**
16	592-13	Commission Income - Vending						
17	593-00	Commission Income - Recycling						
18	594-00	Commission Income - Rentals						
19	594-00	Commission Income - Other						
20		**Total Consolidated NAF Income**		**295,434**	**355,856**	**404,218**	**1,055,507**	**1,842,629**

21		**Total Consolidated NAF Expenses**		**270,438**	**364,702**	**372,992**	**1,008,132**	**1,787,879**
22		**Total Consolidated Profit / (Loss)**		**$24,996**	**($8,846)**	**$31,226**	**$47,375**	**$54,750**
23		**Self- Sufficiency**		**8.5%**	**-2.5%**	**7.7%**	**4.5%**	**3.0%**
Activity:		**COMNAVREGNORTHWEST**						
		Revised Accounts - NAF Expenses		**BUDGET**	**BUDGET**	**BUDGET**	**BUDGET**	**BUDGET**
	Old Acct#	***Consolidated***	**New Acct#**	**JAN**	**FEB**	**MAR**	**2nd QTR**	**FYTD**
24	601-00	Salaries & Wages		83,204	141,204	141,204	**365,612**	**605,774**
25	602-00	Salaries & Wages - Local /Foreign National						
26	603-00	Employee Bonuses & Awards						**3,750**
27	604-00	Payroll Overtime Expense						
28	621-00	Employer's Share of FICA		6,240	10,590	10,590	**27,421**	**45,433**
29	622-00	Annual Leave Expense		3,809	3,809	3,809	**11,427**	**22,854**
30	623-00	Sick Leave Expense		1,904	1,904	1,904	**5,713**	**11,427**
31	625-00	Employee Benefits - Local/Foreign National						
32	626-00	Employee Benefits - Other						
33	629-00	Employer's Health Insurance Cost		1,371	1,371	1,371	**4,114**	**8,227**
34	630-00	Employer's Life/Disability Insurance		152	152	152	**457**	**914**
35	632-00	Employer's Retirement Plan Cost		1,143	1,143	1,143	**3,428**	**6,856**
36	633-00	Employer's Workman's Compensation Cost		3,661	6,213	6,213	**16,087**	**26,654**
37	634-00	Employer's Unemployment Compensation Cost		2,663	3,108	4,519	**10,289**	**17,974**
38		**Sub-Total Labor Expenses**		**104,147**	**169,495**	**170,905**	**444,548**	**749,863**
39	661-00	CBQ Telephone Expense		17,452	23,275	23,825	**64,552**	**116,572**
40	661-00	Postage						

41	662-00	Cable/Satellite Service		25,524	25,524	25,524	**76,572**	**153,144**
42	681-00	Repairs & Maintenance - Vehicles						
43	683-00	Repair & Maintenance FF&E						
44	686-00	Minor Property						
45	701-00	Consumable Cleaning Supplies		1,575	1,575	1,575	**4,725**	**9,150**
46	701-00	Linen, Toweling and Bedding		1,000			**1,000**	**5,900**
47	701-00	NAF Employee Uniforms		1,000		1,000	**2,000**	**3,750**
48	702-00	Non-Consumable Amenities		2,190	2,190	2,190	**6,570**	**13,140**
49	702-00	Consumable Amenities		31,560	37,270	37,665	**106,495**	**189,950**
50	703-00	Laundry/Dry Cleaning		225	225	225	**675**	**1,350**
51	721-00	Travel and Per Diem		2,250	500	3,500	**6,250**	**7,550**
52	741-00	Support Services						
53	781-00	Advertising and Promotion		250	250	250	**750**	**1,500**
54	782-00	Conferences and Training		1,150			**1,150**	**1,150**
55	783-00	Contractual Expense		18,125	18,125	18,125	**54,375**	**108,750**
56	784-00	Credit Card Sales Expense		1,325	1,325	1,325	**3,975**	**7,950**
57	788-00	CBQ/Echelon Assessment		2,828	3,432	3,916	**10,176**	**17,768**
58	789-00	CBQ Headquarters Assessment		8,484	10,297	11,748	**30,529**	**53,305**
59	799-00	Miscellaneous Expense		24,800	43,000	43,000	**110,800**	**184,440**
60		**Sub-Total Other Expenses**		**139,738**	**166,988**	**173,868**	**480,594**	**875,370**
61		**Sub-Total Consolidated NAF Expenses**		**243,886**	**336,483**	**344,773**	**925,142**	**1,625,233**
62	76X-00	Depreciation Expense - Fixed Assets		26,552	28,219	28,219	**82,990**	**162,646**
63	401-00	Cost of Sundries Sold						
64		**Total Consolidated NAF Expenses**		**270,438**	**364,702**	**372,992**	**1,008,132**	**1,787,879**

NAVY BH NAF Annual Operating Budget

Instlltn: **COMNAVREGNORTHWEST**

Claimant: **CINCPACFLT**

	Old	**Revised Accounts - NAF Income**	**New**	**BUDGET**	**BUDGET**	**BUDGET**	**BUDGET**	**BUDGET**
	Acct#	***Consolidated***	**Acct#**	**APR**	**MAY**	**JUN**	**3rd QTR**	**FYTD**
1	501-10	Room Revenue		349,511	366,098	357,847	**1,073,457**	**2,850,296**
2	501-10	Housekeeping Services - Permanent Party						
3	569-10	Other Income						
4	501-17	Services						
5	501-17	Linen						
6	501-17	Refreshments						
7	502-17	Rental - Audio/Visual						
8	502-17	Rental - Equipment						
9	502-17	Rental - Other						
10	301-03	Sundry Sales						
11	502-10	Rental - Video						
12	502-10	Rental - Equipment						
13	502-10	Rental - Other						
14	531-00	Contracted Services						
15	560-00	CBQ Telephone Revenue		12,630	12,630	12,630	**37,890**	**103,680**
16	592-13	Commission Income - Vending						
17	593-00	Commission Income - Recycling						
18	594-00	Commission Income - Rentals						
19	594-00	Commission Income - Other						
20		**Total Consolidated NAF Income**		**362,141**	**378,728**	**370,477**	**1,111,347**	**2,953,976**

21		**Total Consolidated NAF Expenses**		**372,699**	**382,532**	**368,468**	**1,123,700**	**2,911,579**
22		**Total Consolidated Profit / (Loss)**		**($10,558)**	**($3,804)**	**$2,009**	**($12,353)**	**$42,397**
23		**Self- Sufficiency**		**-2.9%**	**-1.0%**	**0.5%**	**-1.1%**	**1.4%**

Activity: **COMNAVREGNORTHWEST**

	Old Acct#	**Revised Accounts - NAF Expenses** ***Consolidated***	New Acct#	BUDGET APR	BUDGET MAY	BUDGET JUN	BUDGET 3rd QTR	BUDGET FYTD
24	601-00	Salaries & Wages		141,204	141,204	142,104	**424,512**	**1,030,286**
25	602-00	Salaries & Wages - Local /Foreign National						
26	603-00	Employee Bonuses & Awards						**3,750**
27	604-00	Payroll Overtime Expense						
28	621-00	Employer's Share of FICA		10,590	10,590	10,658	**31,838**	**77,271**
29	622-00	Annual Leave Expense		3,809	3,809	3,809	**11,427**	**34,281**
30	623-00	Sick Leave Expense		1,904	1,904	1,904	**5,713**	**17,140**
31	625-00	Employee Benefits - Local/Foreign National						
32	626-00	Employee Benefits - Other						
33	629-00	Employer's Health Insurance Cost		1,371	1,371	1,371	**4,114**	**12,341**
34	630-00	Employer's Life/Disability Insurance		152	152	152	**457**	**1,371**
35	632-00	Employer's Retirement Plan Cost		1,143	1,143	1,143	**3,428**	**10,284**
36	633-00	Employer's Workman's Compensation Cost		6,213	6,213	6,253	**18,679**	**45,333**
37	634-00	Employer's Unemployment Compensation Cost		4,519	4,519	4,547	**13,584**	**31,559**
38		**Sub-Total Labor Expenses**		**170,905**	**170,905**	**171,941**	**513,752**	**1,263,616**
39	661-00	CBQ Telephone Expense		23,675	23,700	23,700	**71,075**	**187,647**
40	661-00	Postage						
41	662-00	Cable/Satellite Service		25,524	25,524	25,524	**76,572**	**229,716**

42	681-00	Repairs & Maintenance - Vehicles						
43	683-00	Repair & Maintenance FF&E						
44	686-00	Minor Property						
45	701-00	Consumable Cleaning Supplies		1,575	1,575	1,575	**4,725**	**13,875**
46	701-00	Linen, Toweling and Bedding		4,900			**4,900**	**10,800**
47	701-00	NAF Employee Uniforms		750	12,000		**12,750**	**16,500**
48	702-00	Non-Consumable Amenities		2,190	2,190	2,190	**6,570**	**19,710**
49	702-00	Consumable Amenities		37,555	37,230	37,290	**112,075**	**302,025**
50	703-00	Laundry/Dry Cleaning		225	225	225	**675**	**2,025**
51	721-00	Travel and Per Diem		500	2,250	500	**3,250**	**10,800**
52	741-00	Support Services						
53	781-00	Advertising and Promotion		250	250	250	**750**	**2,250**
54	782-00	Conferences and Training			1,150		**1,150**	**2,300**
55	783-00	Contractual Expense		18,125	18,125	18,125	**54,375**	**163,125**
56	784-00	Credit Card Sales Expense		1,325	1,325	1,325	**3,975**	**11,925**
57	788-00	CBQ/Echelon Assessment		3,495	3,661	3,578	**10,735**	**28,503**
58	789-00	CBQ Headquarters Assessment		10,485	10,983	10,735	**32,204**	**85,509**
59	799-00	Miscellaneous Expense		43,000	43,220	43,290	**129,510**	**313,950**
60		**Sub-Total Other Expenses**		**173,574**	**183,408**	**168,308**	**525,290**	**1,400,660**
61		**Sub-Total Consolidated NAF Expenses**		**344,480**	**354,313**	**340,249**	**1,039,043**	**2,664,276**
62	76X-00	Depreciation Expense - Fixed Assets		28,219	28,219	28,219	**84,657**	**247,303**
63	401-00	Cost of Sundries Sold						
64		**Total Consolidated NAF Expenses**		**372,699**	**382,532**	**368,468**	**1,123,700**	**2,911,579**

NAVY BH NAF Annual Operating Budget

Instlltn: **COMNAVREGNORTHWEST**

Claimant: **CINCPACFLT**

	Old Acct#	Revised Accounts - NAF Income *Consolidated*	New Acct#	BUDGET JUL	BUDGET AUG	BUDGET SEP	BUDGET 4th QTR	BUDGET FY TOTAL
1	501-10	Room Revenue		369,775	366,625	353,070	**1,089,470**	**$3,939,766**
2	501-10	Housekeeping Services - Permanent Party						
3	569-10	Other Income						
4	501-17	Services						
5	501-17	Linen						
6	501-17	Refreshments						
7	502-17	Rental - Audio/Visual						
8	502-17	Rental - Equipment						
9	502-17	Rental - Other						
10	301-03	Sundry Sales						
11	502-10	Rental - Video						
12	502-10	Rental - Equipment						
13	502-10	Rental - Other						
14	531-00	Contracted Services						
15	560-00	CBQ Telephone Revenue		12,630	12,500	12,500	**37,630**	**$141,310**
16	592-13	Commission Income - Vending						
17	593-00	Commission Income - Recycling						
18	594-00	Commission Income - Rentals						
19	594-00	Commission Income - Other						
20		**Total Consolidated NAF Income**		**382,405**	**379,125**	**365,570**	**1,127,100**	**$4,081,076**

21		**Total Consolidated NAF Expenses**		**370,960**	**364,824**	**363,472**	**1,099,256**	**$4,010,835**
22		**Total Consolidated Profit / (Loss)**		**$11,445**	**$14,300**	**$2,098**	**$27,844**	**$70,241**
23		**Self- Sufficiency**		**3.0%**	**3.8%**	**0.6%**	**2.5%**	**1.7%**

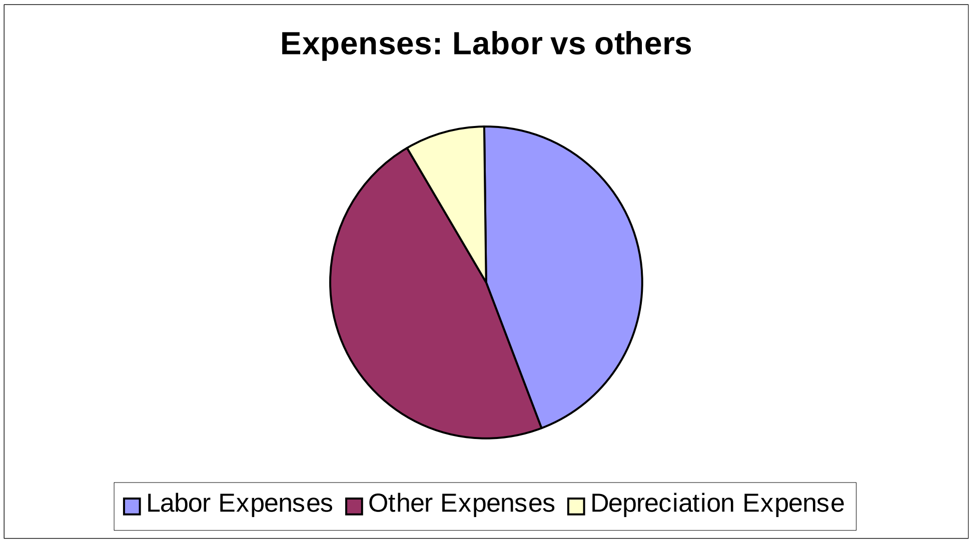
Activity: **COMNAVREGNORTHWEST**

	Old Acct#	**Revised Accounts - NAF Expenses** ***Consolidated***	**New Acct#**	**BUDGET JUL**	**BUDGET AUG**	**BUDGET SEP**	**BUDGET 4th QTR**	**BUDGET FY TOTAL**
24	601-00	Salaries & Wages		142,104	139,354	139,354	**420,812**	**$1,451,098**
25	602-00	Salaries & Wages - Local /Foreign National						
26	603-00	Employee Bonuses & Awards						**$3,750**
27	604-00	Payroll Overtime Expense						
28	621-00	Employer's Share of FICA		10,658	10,452	10,452	**31,561**	**$108,832**
29	622-00	Annual Leave Expense		3,809	3,809	3,809	**11,427**	**$45,707**
30	623-00	Sick Leave Expense		1,904	1,904	1,904	**5,713**	**$22,854**
31	625-00	Employee Benefits - Local/Foreign National						
32	626-00	Employee Benefits - Other						
33	629-00	Employer's Health Insurance Cost		1,371	1,371	1,371	**4,114**	**$16,455**
34	630-00	Employer's Life/Disability Insurance		152	152	152	**457**	**$1,828**
35	632-00	Employer's Retirement Plan Cost		1,143	1,143	1,143	**3,428**	**$13,712**
36	633-00	Employer's Workman's Compensation Cost		6,253	6,132	6,132	**18,516**	**$63,848**
37	634-00	Employer's Unemployment Compensation Cost		4,547	4,459	4,459	**13,466**	**$45,025**
38		**Sub-Total Labor Expenses**		**171,941**	**168,776**	**168,776**	**509,494**	**$1,773,110**
39	661-00	CBQ Telephone Expense		23,675	23,675	23,725	**71,075**	**$258,722**
40	661-00	Postage						
41	662-00	Cable/Satellite Service		25,524	25,524	25,524	**76,572**	**$306,288**

42	681-00	Repairs & Maintenance - Vehicles						
43	683-00	Repair & Maintenance FF&E						
44	686-00	Minor Property						
45	701-00	Consumable Cleaning Supplies		1,575	1,675	1,675	**4,925**	**$18,800**
46	701-00	Linen, Toweling and Bedding			1,000		**1,000**	**$11,800**
47	701-00	NAF Employee Uniforms		2,000			**2,000**	**$18,500**
48	702-00	Non-Consumable Amenities		2,190	2,190	2,190	**6,570**	**$26,280**
49	702-00	Consumable Amenities		37,280	35,385	35,565	**108,230**	**$410,255**
50	703-00	Laundry/Dry Cleaning		225	225	225	**675**	**$2,700**
51	721-00	Travel and Per Diem		500	500	500	**1,500**	**$12,300**
52	741-00	Support Services						
53	781-00	Advertising and Promotion		250	250	250	**750**	**$3,000**
54	782-00	Conferences and Training						**$2,300**
55	783-00	Contractual Expense		18,125	18,125	18,125	**54,375**	**$217,500**
56	784-00	Credit Card Sales Expense		1,325	1,325	1,325	**3,975**	**$15,900**
57	788-00	CBQ/Echelon Assessment		3,698	3,666	3,531	**10,895**	**$39,398**
58	789-00	CBQ Headquarters Assessment		11,093	10,999	10,592	**32,684**	**$118,193**
59	799-00	Miscellaneous Expense		43,340	43,290	43,250	**129,880**	**$443,830**
60		**Sub-Total Other Expenses**		**170,800**	**167,829**	**166,477**	**505,106**	**$1,905,766**
61		**Sub-Total Consolidated NAF Expenses**		**342,741**	**336,605**	**335,253**	**1,014,599**	**$3,678,875**
62	76X-00	Depreciation Expense - Fixed Assets		28,219	28,219	28,219	**84,657**	**$331,960**
63	401-00	Cost of Sundries Sold						
64		**Total Consolidated NAF Expenses**		**370,960**	**364,824**	**363,472**	**1,099,256**	**$4,010,835**

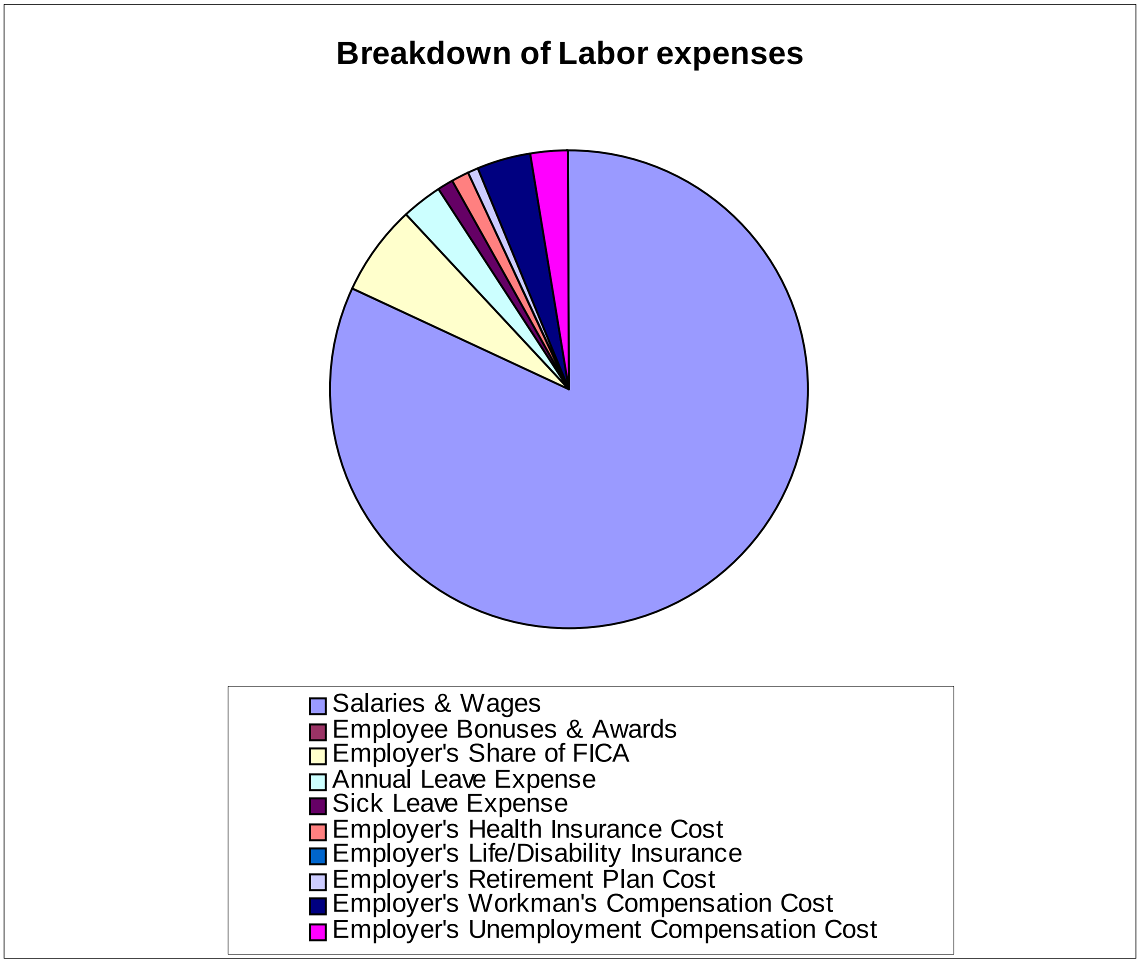
Appendix G – Expenses

Labor Expenses	**$1,773,110**
Other Expenses	**$1,905,766**
Depreciation Expense	**$331,960**



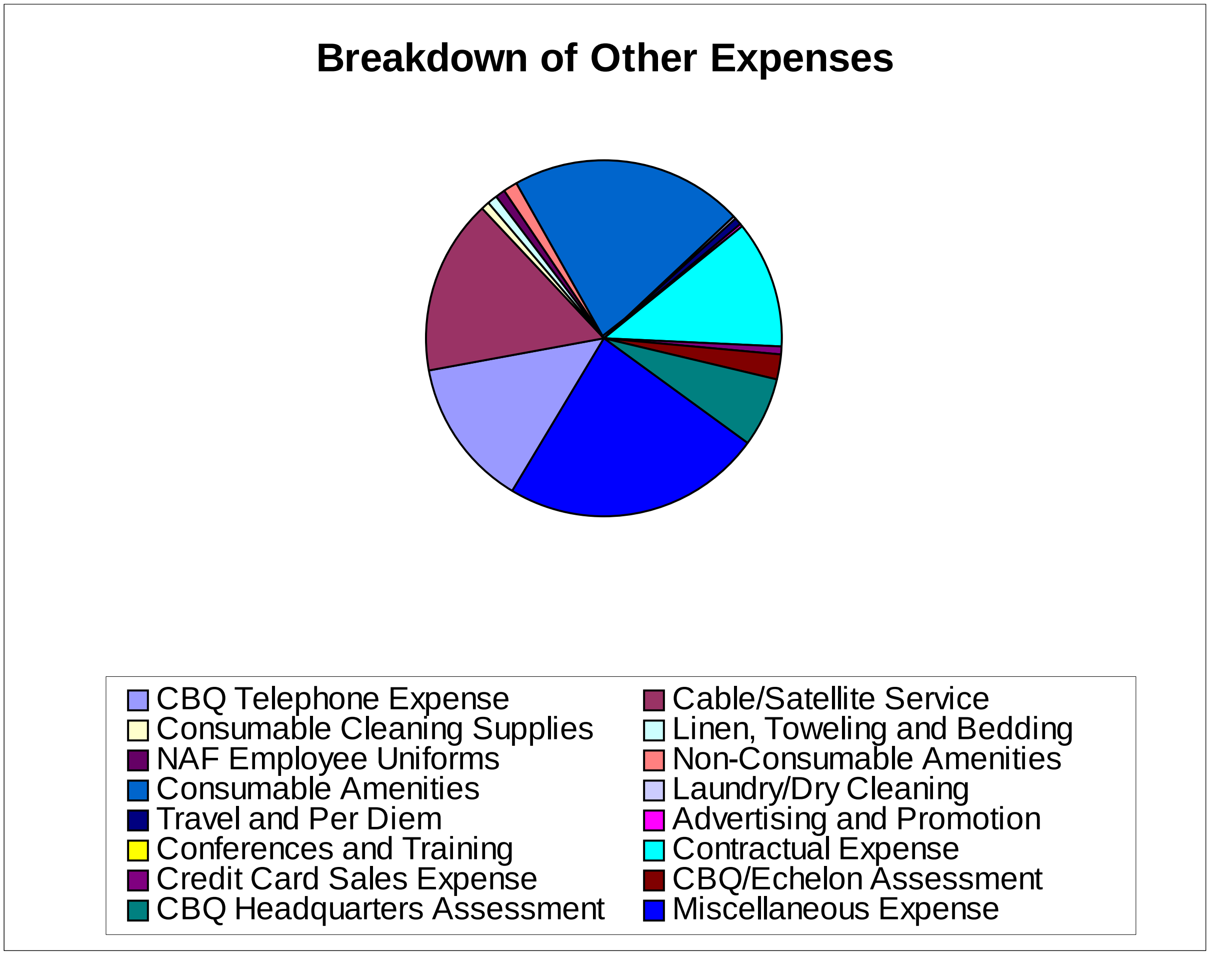
Appendix G – Expenses

Salaries & Wages	**$1,451,098**
Employee Bonuses & Awards	**$3,750**
Employer's Share of FICA	**$108,832**
Annual Leave Expense	**$45,707**
Sick Leave Expense	**$22,854**
Employer's Health Insurance Cost	**$16,455**
Employer's Life/Disability Insurance	**$1,828**
Employer's Retirement Plan Cost	**$13,712**
Employer's Workman's Compensation Cost	**$63,848**
Employer's Unemployment Compensation Cost	**$45,025**
Sub-Total Labor Expenses	**$1,773,110**



Appendix G – Expenses

CBQ Telephone Expense	**$258,722**
Cable/Satellite Service	**$306,288**
Consumable Cleaning Supplies	**$18,800**
Linen, Toweling and Bedding	**$11,800**
NAF Employee Uniforms	**$18,500**
Non-Consumable Amenities	**$26,280**
Consumable Amenities	**$410,255**
Laundry/Dry Cleaning	**$2,700**
Travel and Per Diem	**$12,300**
Advertising and Promotion	**$3,000**
Conferences and Training	**$2,300**
Contractual Expense	**$217,500**
Credit Card Sales Expense	**$15,900**
CBQ/Echelon Assessment	**$39,398**
CBQ Headquarters Assessment	**$118,193**
Miscellaneous Expense	**$443,830**



Appendix H – Stakeholder Analysis

Stakeholder.

	Stakeholders	Interest(s) or Demands	Impact	Importance of Stakeholder	Stakeholder's Strength	Stakeholder's Weaknesses
1.	Enterprise	• Cost restructuring – funding gravitating towards fleet modernization programs. • Organization-wide drive to trim cost.	Strong commitment on change	Critical	Highest management Board	Lack of visibility on ground management and man oeuvres.
2.	CNRNW	• Cost saving – to meet enterprise objective • Enhanced support level	Committed to change	Critical	• Direct Management Authority • Full staff support • Visibility of ground issues	No apparent reward. Achieving too soon may in fact be 'punishing'.
3.	HQ Staff	• Cost saving – to meet enterprise objective • Enhanced support level • Maintaining fiefdom	High	Important	• Good grasp of the crux of the issues	• sympathize with the ground workers
4.	BQ/VQ Personnel	• Job Security • Remuneration package	Not high	Not critical	• Direct interaction with customer	• May be removed (out of job).
5.	Contractors	• Contract award • Profit	Not high	Not critical	• Industrial best practice • Industry know-how	• Not direct say to BQ/VQ management

Appendix I – Evaluation Matrix

Evaluation Matrix

Alternatives	Performance enhancement measures	Cost reduction		Organization Restructuring		New Business Model	New Business Model with Restructuring	
Criteria		Reduce headcount	Other operations costs	Merger	Privatization	Complete IT Integration		Weight
Cost Saving	1	2	1	3	3	4	5	3
Safeguards against wasteful Authorization	3	3	3	3	3	5	5	1
Performance indicators	3	1	1	5	5	5	5	1
Customer Satisfaction	3	1	1	3	3	5	5	3
Implementation time frame	5	5	5	3	3	3	1	3
Implementation Cost	5	5	5	3	3	2	1	2
IT Integration	1	1	1	3	3	5	5	1
Standardization of Services	1	1	1	3	3	5	5	1
Total	45	40	37	47	47	60	55	

Assessment Matrix Scheme – Score guide

1. Cost Saving

Assessment Guidelines	***Score***
Not achieving any form of cost saving	1
Achieve 25% of the targeted saving	2
Achieve 50% of the targeted saving	3
Achieve 75% of the targeted saving	4
Achieve 100% the targeted saving	5

2. Safeguards against wasteful Authorization

Assessment Guidelines	***Score***
No Integrated Authorization checking system	1
No Integrated Authorization but has checking system	3
Integrated Authorization checking system	5

3. Performance indicators

Assessment Guidelines	***Score***
Non conforming of Performance indicator and matrix	1
Conforming to some indicators and matrix	3
Conforming to all indicators and matrix	5

4. Customer Satisfaction

Assessment Guidelines	***Score***
Drop in customer satisfaction	1
No improvement in customer satisfaction	3
Improvement in customer satisfaction	5

5. Implementation Timeframe

Assessment Guidelines	***Score***
Projected Timeframe of >6 years	1
Projected Timeframe of 5-6 years	2
Projected Timeframe of 4-5 years	3
Projected Timeframe of 3-4 years	4
Able to meet Timeframe below 2 years	5

6. Implementation Cost

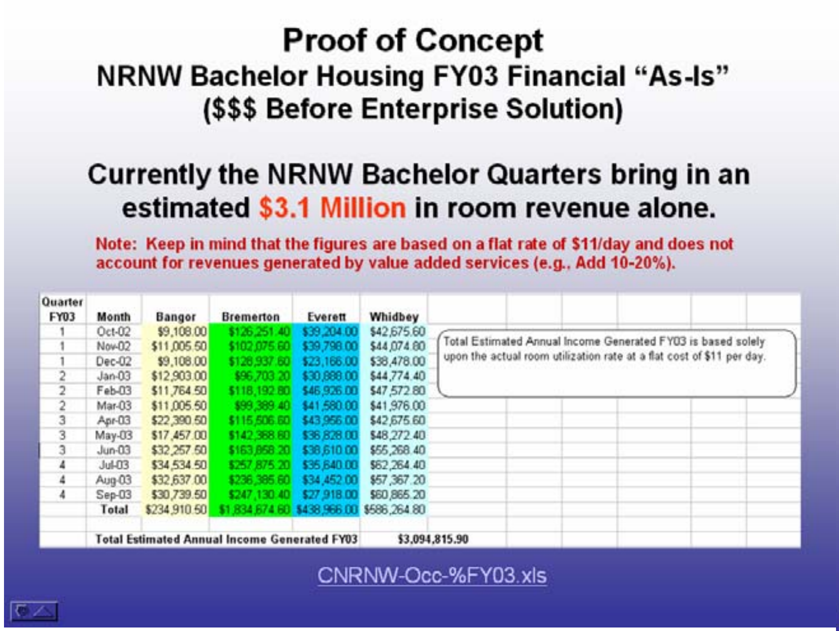
Assessment Guidelines	***Score***
Implementation Cost > $2mil	1
Implementation Cost > $1.5mil	2
Implementation Cost > $1.mil	3
Implementation Cost > $0.5mil	4
No Implementation Cost	5

7. IT Integration

Assessment Guidelines	***Score***
No IT integration	1
Limited IT integration	2
Fair amount of IT integration	3
Most IT integration	4
Complete IT integration (NMCI, Single access etc)	5

8. Standardization of Service

Assessment Guidelines	***Score***
No standardization of service	1
Few services are standardized	2
Fair amount services are standardized	3
Most services are standardized	4
Standardization of service across all VQ	5



Proof of Concept

NRNW Bachelor Housing FY03 Financial "As-Is" ($$$ Before Enterprise Solution)

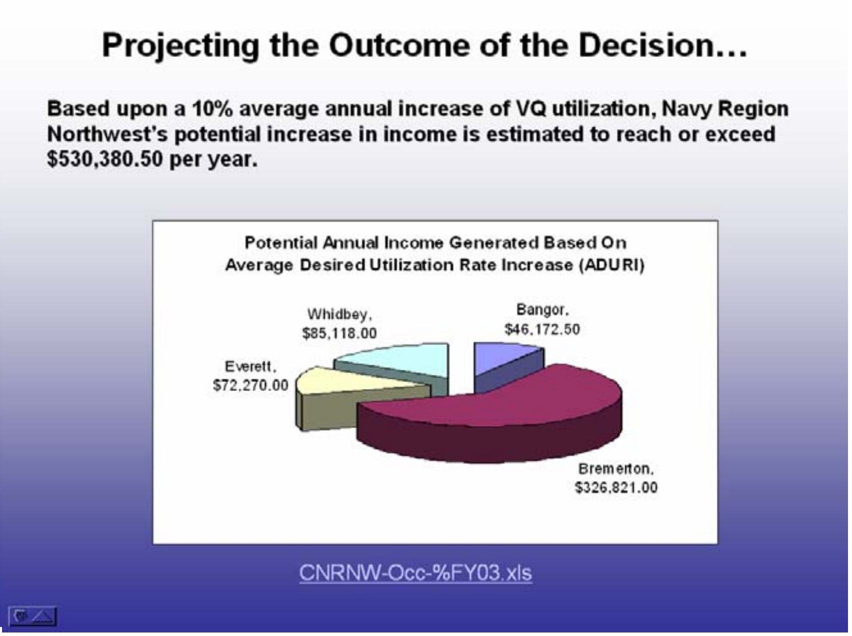
Currently the NRNW Bachelor Quarters bring in an estimated $3.1 Million in room revenue alone.

Note: Keep in mind that the figures are based on a flat rate of $11/day and does not account for revenues generated by value added services (e.g., Add 10-20%).

Quarter FY03	Month	Bangor	Bremerton	Everett	Whidbey
1	Oct-02	$9,108.00	$126,251.40	$39,204.00	$42,675.60
1	Nov-02	$11,005.50	$102,075.60	$39,798.00	$44,074.80
1	Dec-02	$9,108.00	$128,937.60	$23,166.00	$38,478.00
2	Jan-03	$12,903.00	$96,703.20	$30,888.00	$44,774.40
2	Feb-03	$11,764.50	$118,192.80	$46,926.00	$47,572.80
2	Mar-03	$11,005.50	$99,389.40	$41,580.00	$41,976.00
3	Apr-03	$22,390.50	$115,506.60	$43,956.00	$42,675.60
3	May-03	$17,457.00	$142,368.60	$36,828.00	$48,272.40
3	Jun-03	$32,257.50	$163,858.20	$38,610.00	$55,268.40
4	Jul-03	$34,534.50	$257,875.20	$35,640.00	$62,264.40
4	Aug-03	$32,637.00	$236,385.60	$34,452.00	$57,367.20
4	Sep-03	$30,739.50	$247,130.40	$27,918.00	$60,865.20
	Total	$234,910.50	$1,834,674.60	$438,966.00	$586,264.80
	Total Estimated Annual Income Generated FY03				**$3,094,815.90**

Total Estimated Annual Income Generated FY03 is based solely upon the actual room utilization rate at a flat cost of $11 per day.

CNRNW-Occ-%FY03.xls

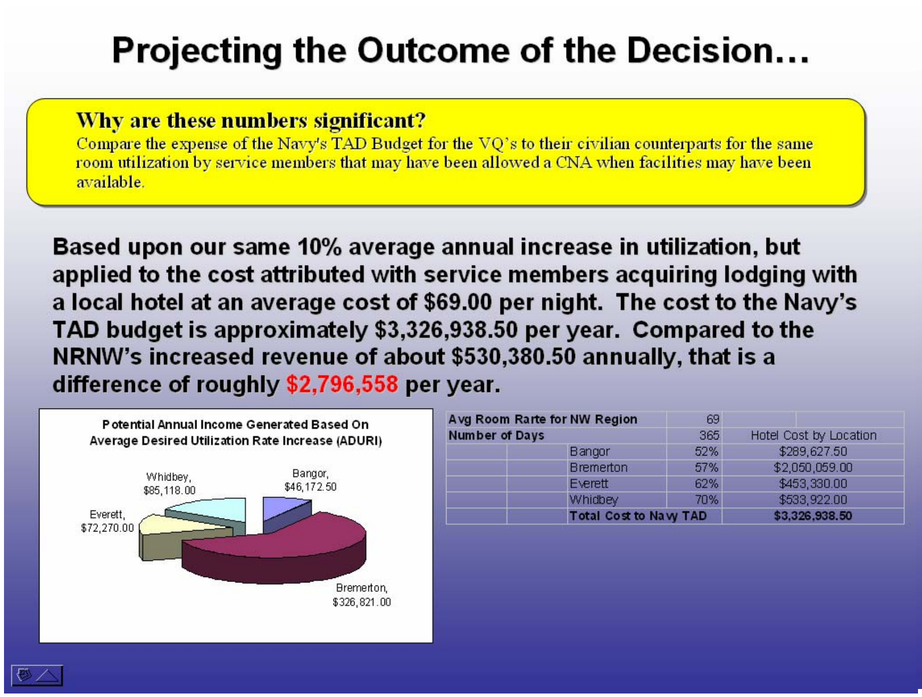


Projecting the Outcome of the Decision…

Based upon a 10% average annual increase of VQ utilization, Navy Region Northwest's potential increase in income is estimated to reach or exceed $530,380.50 per year.

Potential Annual Income Generated Based On Average Desired Utilization Rate Increase (ADURI)

CNRNW-Occ-%FY03.xls



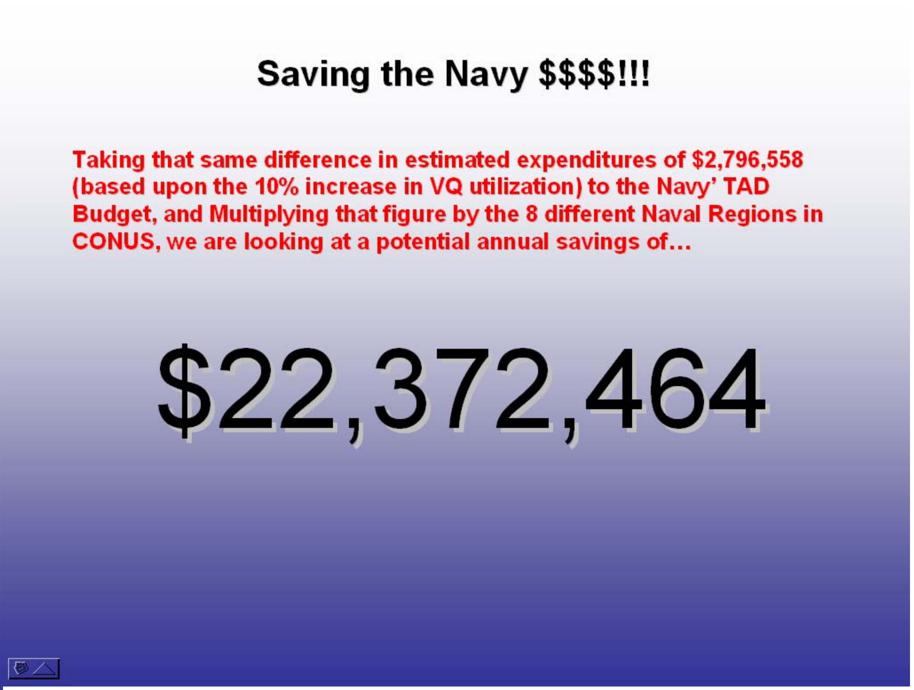
Projecting the Outcome of the Decision…

Why are these numbers significant?
Compare the expense of the Navy's TAD Budget for the VQ's to their civilian counterparts for the same room utilization by service members that may have been allowed a CNA when facilities may have been available.

Based upon our same 10% average annual increase in utilization, but applied to the cost attributed with service members acquiring lodging with a local hotel at an average cost of $69.00 per night. The cost to the Navy's TAD budget is approximately $3,326,938.50 per year. Compared to the NRNW's increased revenue of about $530,380.50 annually, that is a difference of roughly $2,796,558 per year.

Potential Annual Income Generated Based On Average Desired Utilization Rate Increase (ADURI)

Avg Room Rarte for NW Region			69	
Number of Days			365	Hotel Cost by Location
		Bangor	52%	$289,627.50
		Bremerton	57%	$2,050,059.00
		Everett	62%	$453,330.00
		Whidbey	70%	$533,922.00
		Total Cost to Navy TAD		**$3,326,938.50**

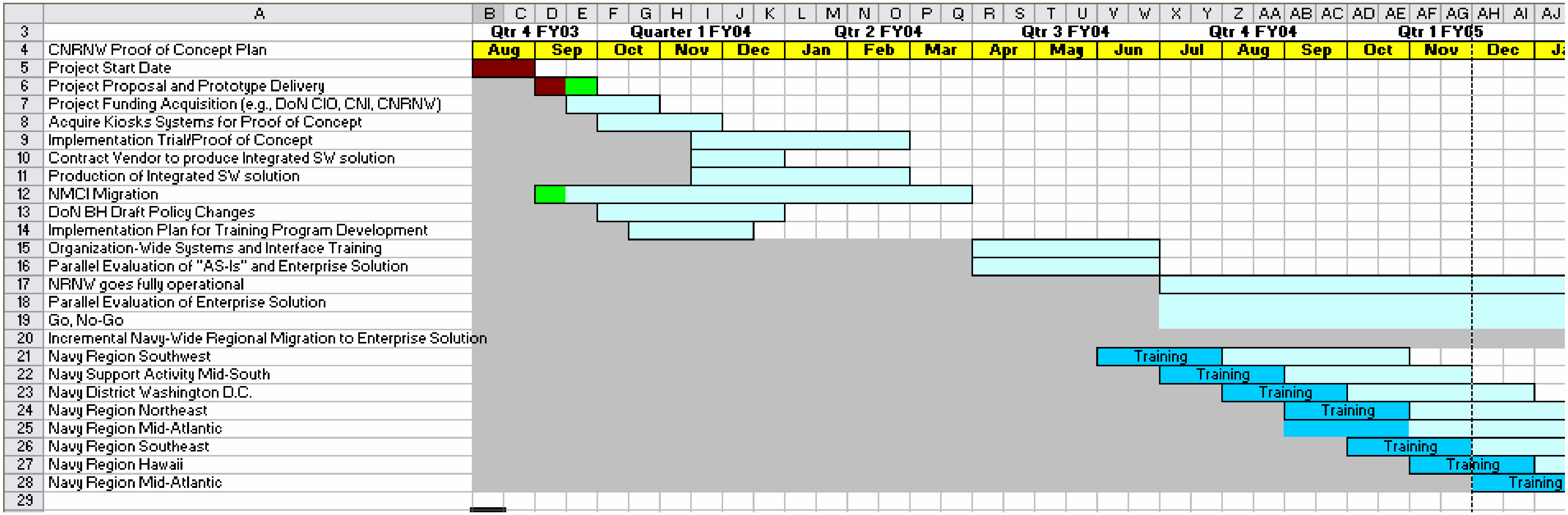


Saving the Navy $$$$!!!

Taking that same difference in estimated expenditures of $2,796,558 (based upon the 10% increase in VQ utilization) to the Navy' TAD Budget, and Multiplying that figure by the 8 different Naval Regions in CONUS, we are looking at a potential annual savings of…

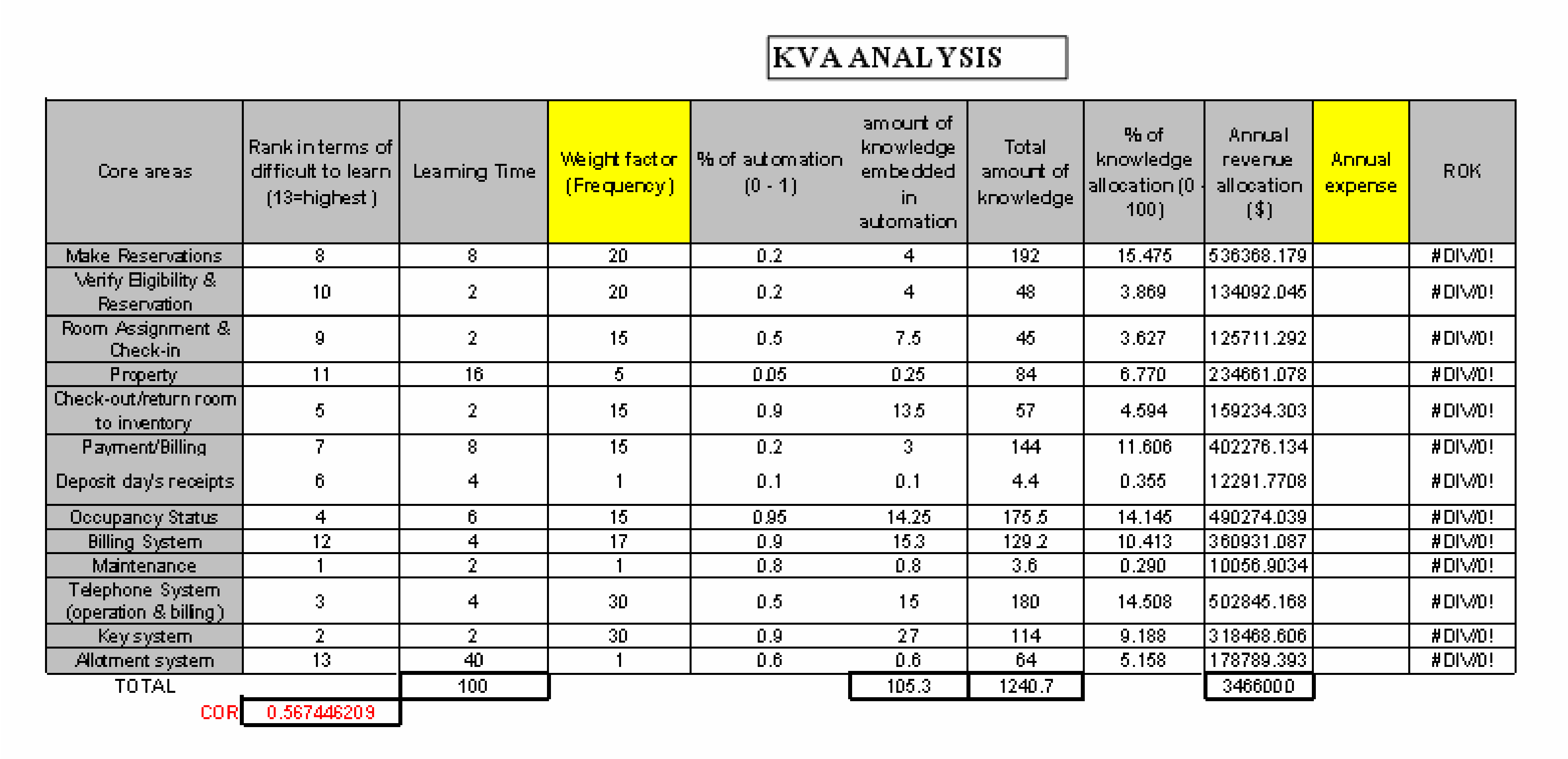
$22,372,464

Appendix K - Timeline



	A
3	
4	CNRNW Proof of Concept Plan
5	Project Start Date
6	Project Proposal and Prototype Delivery
7	Project Funding Acquisition (e.g., DoN CIO, CNI, CNRNW)
8	Acquire Kiosks Systems for Proof of Concept
9	Implementation Trial/Proof of Concept
10	Contract Vendor to produce Integrated SW solution
11	Production of Integrated SW solution
12	NMCI Migration
13	DoN BH Draft Policy Changes
14	Implementation Plan for Training Program Development
15	Organization-Wide Systems and Interface Training
16	Parallel Evaluation of "AS-Is" and Enterprise Solution
17	NRNW goes fully operational
18	Parallel Evaluation of Enterprise Solution
19	Go, No-Go
20	Incremental Navy-Wide Regional Migration to Enterprise Solution
21	Navy Region Southwest
22	Navy Support Activity Mid-South
23	Navy District Washington D.C.
24	Navy Region Northeast
25	Navy Region Mid-Atlantic
26	Navy Region Southeast
27	Navy Region Hawaii
28	Navy Region Mid-Atlantic
29	

Appendix L – KVA Analysis



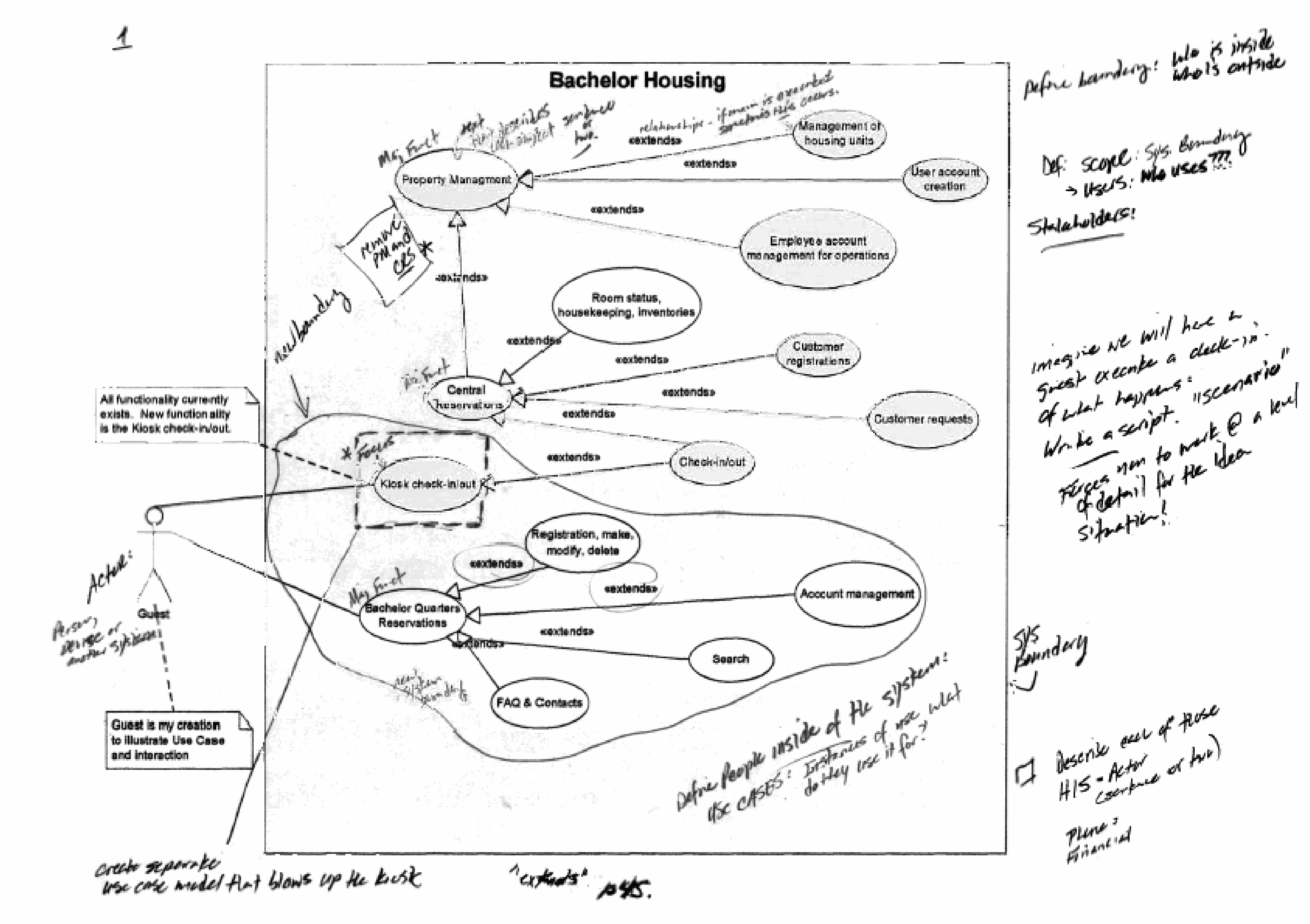
KVA ANALYSIS

Core areas	Rank in terms of difficult to learn (13=highest)	Learning Time	Weight factor (Frequency)	% of automation (0 - 1)	amount of knowledge embedded in automation	Total amount of knowledge	% of knowledge allocation (0 - 100)	Annual revenue allocation ($)	Annual expense	ROK
Make Reservations	8	8	20	0.2	4	192	15.475	536368.179		#DIV/0!
Verify Eligibility & Reservation	10	2	20	0.2	4	48	3.869	134092.045		#DIV/0!
Room Assignment & Check-in	9	2	15	0.5	7.5	45	3.627	125711.292		#DIV/0!
Property	11	16	5	0.05	0.25	84	6.770	234661.078		#DIV/0!
Check-out/return room to inventory	5	2	15	0.9	13.5	57	4.594	159234.303		#DIV/0!
Payment/Billing	7	8	15	0.2	3	144	11.606	402276.134		#DIV/0!
Deposit day's receipts	6	4	1	0.1	0.1	4.4	0.355	12291.7708		#DIV/0!
Occupancy Status	4	6	15	0.95	14.25	175.5	14.145	490274.039		#DIV/0!
Billing System	12	4	17	0.9	15.3	129.2	10.413	360931.087		#DIV/0!
Maintenance	1	2	1	0.8	0.8	3.6	0.290	10056.9034		#DIV/0!
Telephone System (operation & billing)	3	4	30	0.5	15	180	14.508	502845.168		#DIV/0!
Key system	2	2	30	0.9	27	114	9.188	318468.606		#DIV/0!
Allotment system	13	40	1	0.6	0.6	64	5.158	178789.393		#DIV/0!
TOTAL		100			105.3	1240.7		3466000		
COR	0.567446209									

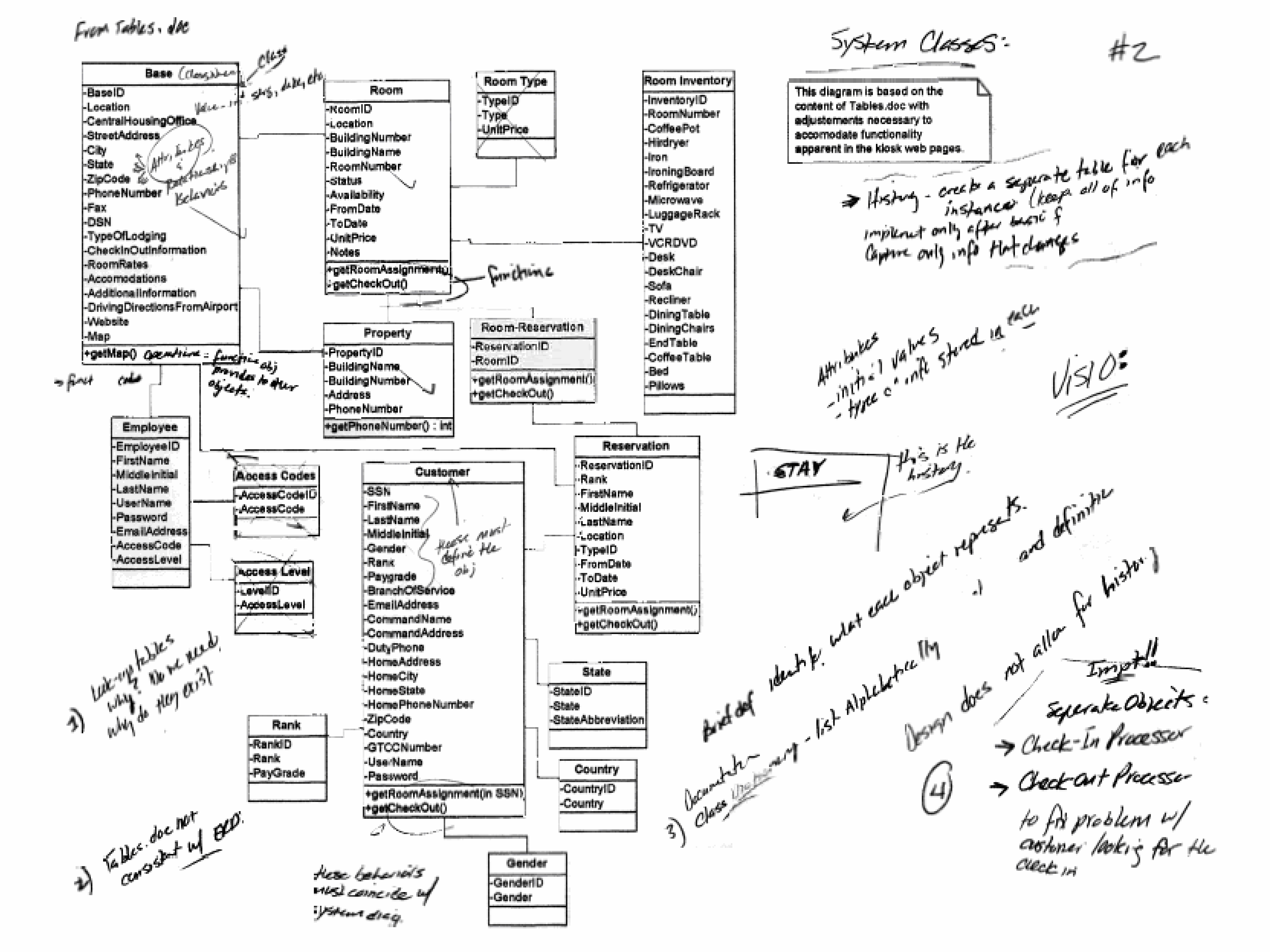
APPENDIX B. BACHELOR HOUSING UML USE CASE REQUIREMENTS GENERATION DIAGRAMS

Appendix B contains the actual "working" Unified Modeling Language (UML) Use Case documentation, with developer notes, to illustrate the level of the detailed, iterative analysis that led to the generation of the prototyping requirements.

Bachelor Housing UML Use Case Requirements Generation Diagrams

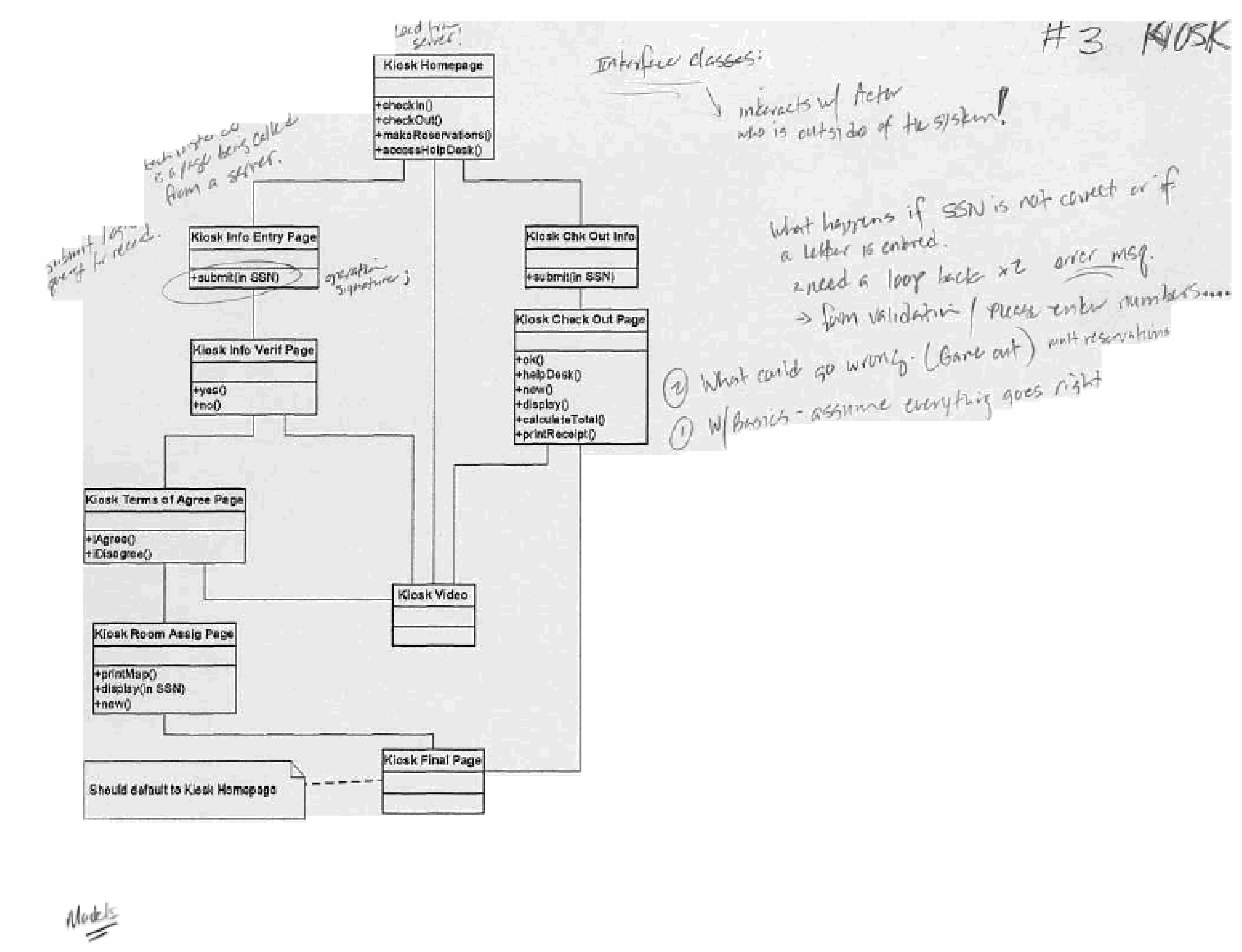

1
Bachelor Housing
Property Managment
Management of housing units
User account creation
Employee account management for operations
Room status, housekeeping, inventories
Central Reservations
Customer registrations
Customer requests
Check-in/out
Kiosk check-in/out
Registration, make, modify, delete
Account management
Bachelor Quarters Reservations
Search
FAQ & Contacts
«extends»
All functionality currently exists. New functionality is the Kiosk check-in/out.
Guest
Guest is my creation to illustrate Use Case and interaction
My First
My First
My First
Focus
remove PM and CRS
new boundary
new system boundary
relationships - if ... is executed sometimes this occurs.
Actor:
Person, device or another system
Define boundary: who is inside who's outside
Def: scope: Sys. Boundary
→ users: who uses???
Stakeholders!
Imagine we will have a guest execute a check-in: of what happens: Write a script. "scenario"
Forces you to work @ a level of detail for the idea situation!
Sys boundary
Define people inside of the system:
Use CASES: Instances of use what do they use it for?
Describe each of those
HIS = Actor (... or ...)
Phone: Financial
create separate use case model that blows up the kiosk
"extends"

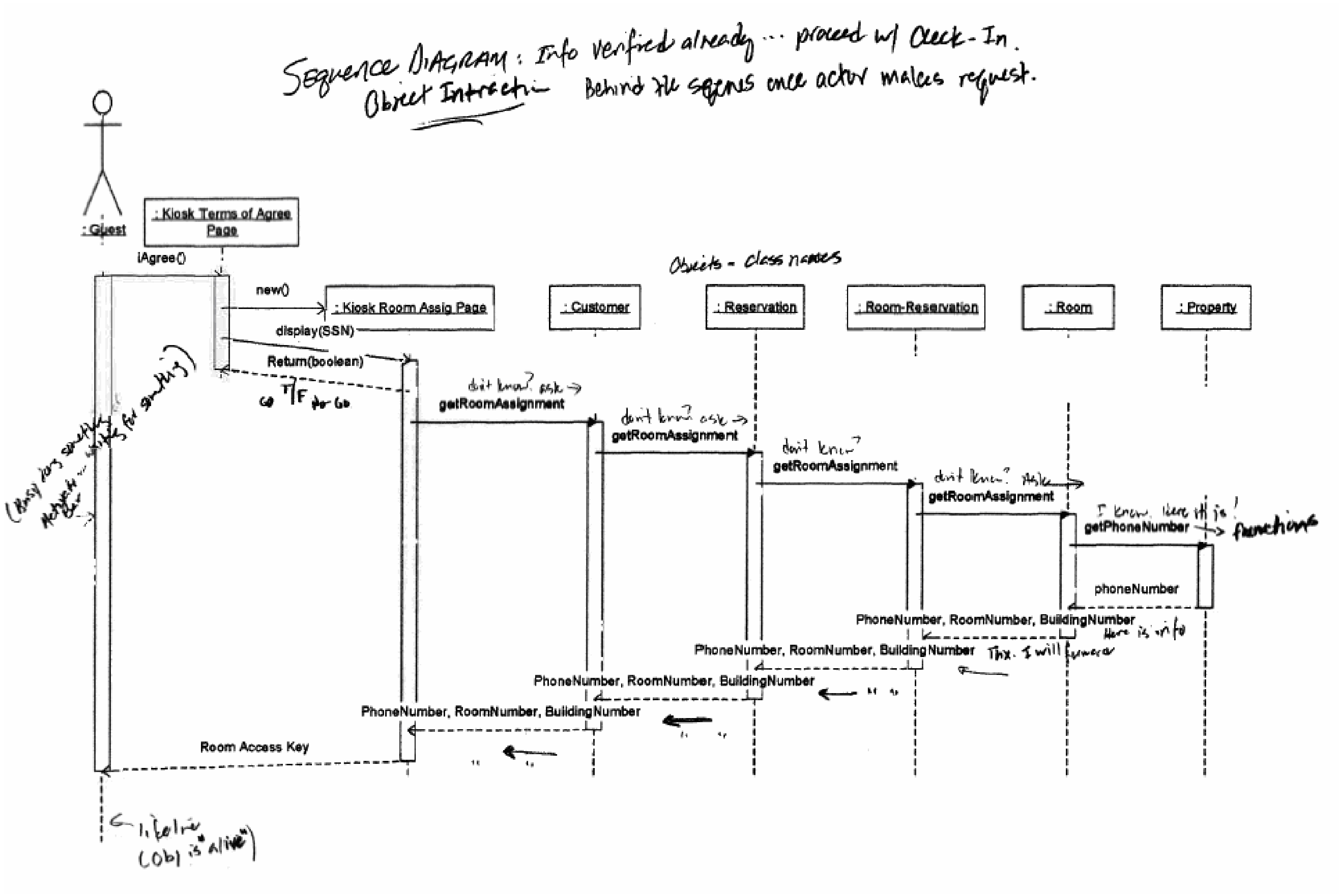
Bachelor Housing UML Use Case Requirements Generation Diagrams



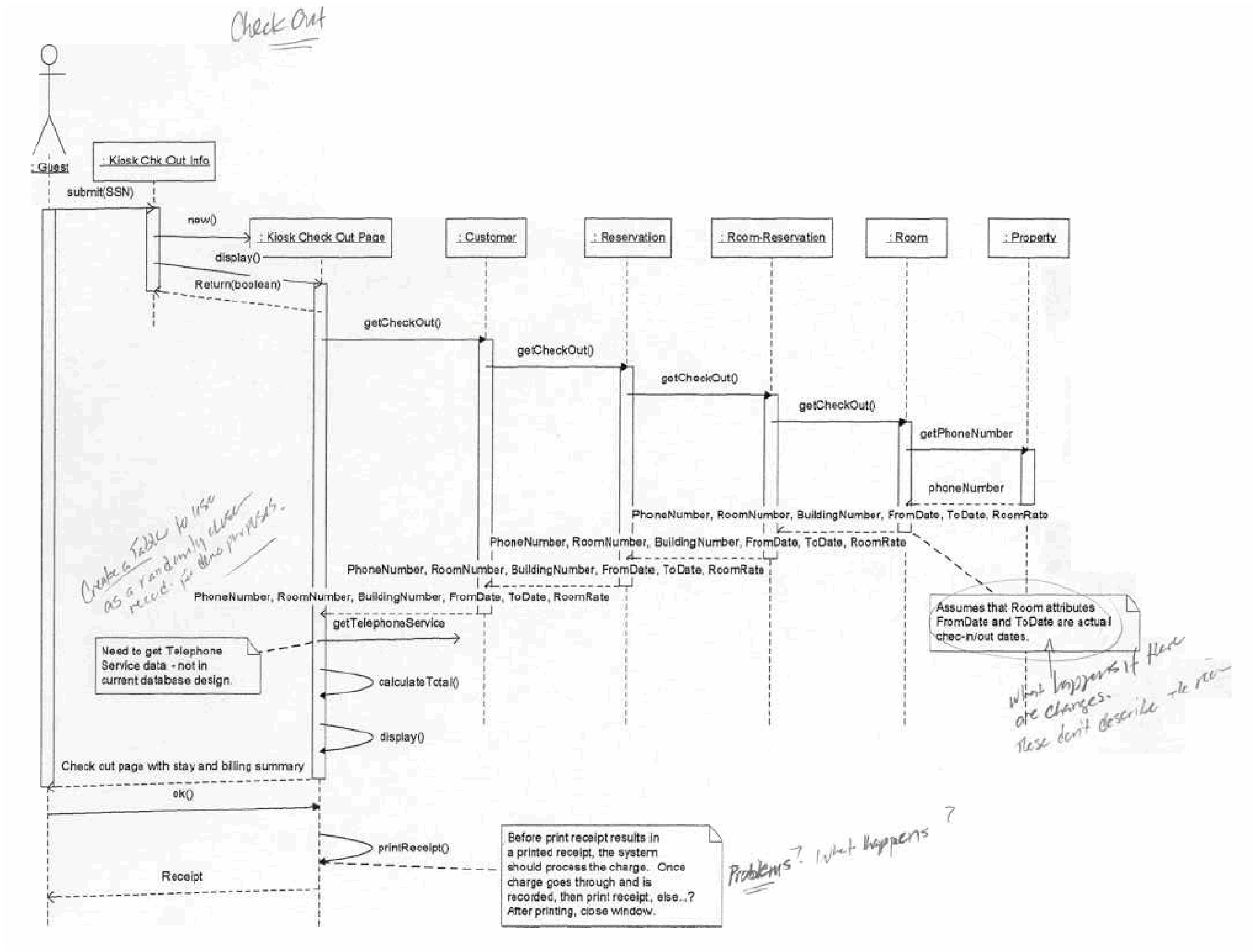
This diagram is based on the content of Tables.doc with adjustements necessary to accomodate functionality apparent in the kiosk web pages.

Bachelor Housing UML Use Case Requirements Generation Diagrams




Sequence DIAGRAM: Info verified already ... proceed w/ Check-In.
Object Interaction Behind the scenes once actor makes request.
: Guest
: Kiosk Terms of Agree Page
iAgree()
Objects = class names
new()
: Kiosk Room Assig Page
: Customer
: Reservation
: Room-Reservation
: Room
: Property
display(SSN)
Return(boolean)
Go T/F No Go
(Kiosk has something ... waits for something)
Activation Bar
don't know? ask →
getRoomAssignment
don't know? ask →
getRoomAssignment
don't know?
getRoomAssignment
don't know? Ask →
getRoomAssignment
I know, here it is!
getPhoneNumber
→ functions
phoneNumber
PhoneNumber, RoomNumber, BuildingNumber
Here is info
PhoneNumber, RoomNumber, BuildingNumber
Thx. I will forward
PhoneNumber, RoomNumber, BuildingNumber
" "
PhoneNumber, RoomNumber, BuildingNumber
" "
Room Access Key
" "
← lifeline (obj is "alive")

Bachelor Housing UML Use Case Requirements Generation Diagrams


Check Out
: Guest
: Kiosk Chk Out Info
submit(SSN)
new()
: Kiosk Check Out Page
: Customer
: Reservation
: Room-Reservation
: Room
: Property
display()
Return(boolean)
getCheckOut()
getCheckOut()
getCheckOut()
getCheckOut()
getPhoneNumber
phoneNumber
PhoneNumber, RoomNumber, BuildingNumber, FromDate, ToDate, RoomRate
PhoneNumber, RoomNumber, BuildingNumber, FromDate, ToDate, RoomRate
PhoneNumber, RoomNumber, BuildingNumber, FromDate, ToDate, RoomRate
PhoneNumber, RoomNumber, BuildingNumber, FromDate, ToDate, RoomRate
getTelephoneService
calculateTotal()
display()
Check out page with stay and billing summary
ok()
printReceipt()
Receipt

Create a Table to use as a randomly closed record. for demo purposes.

Need to get Telephone Service data - not in current database design.

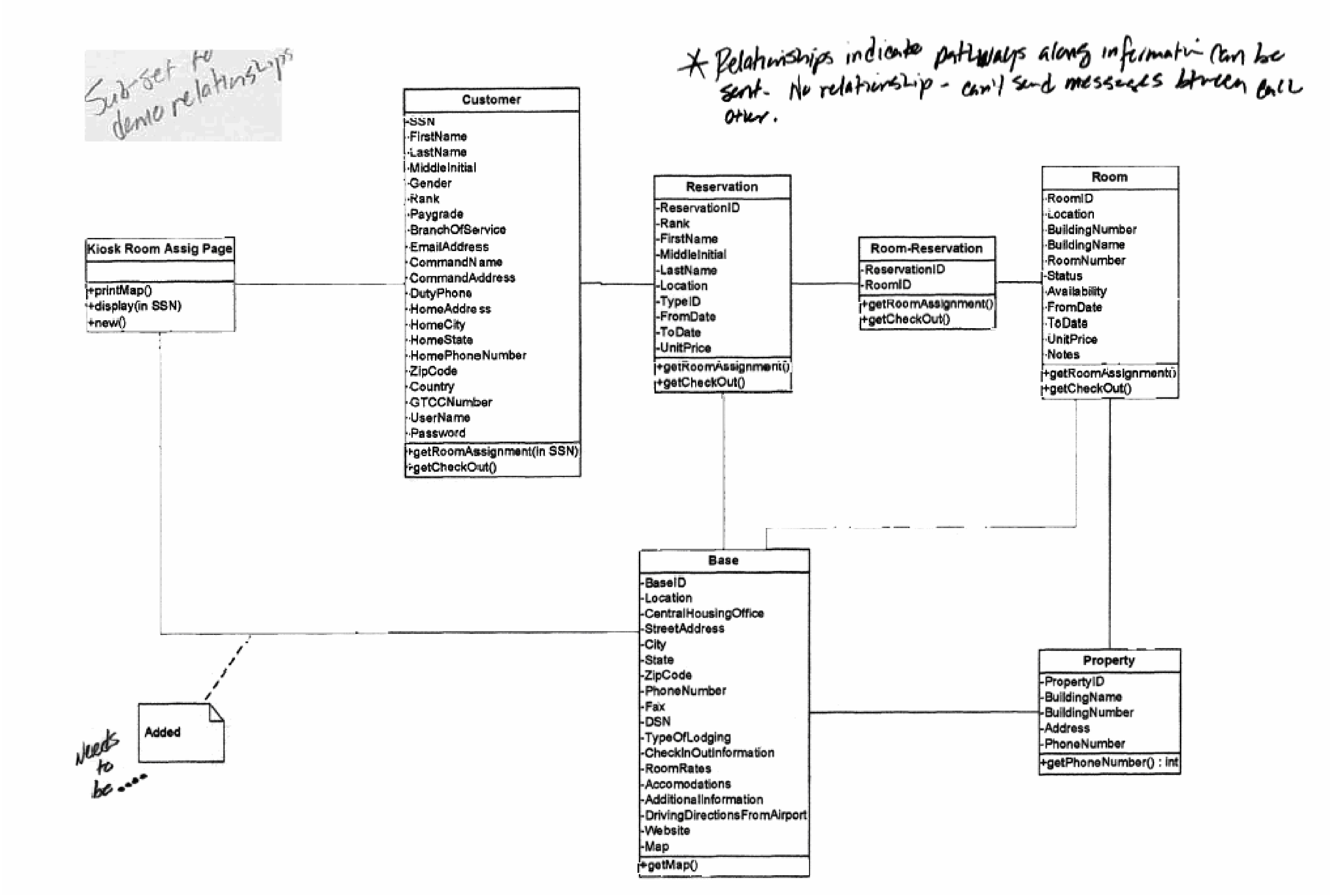
Assumes that Room attibutes FromDate and ToDate are actual chec-in/out dates.

What happens if there are changes. These don't describe the rec—

Before print receipt results in a printed receipt, the system should process the charge. Once charge goes through and is recorded, then print receipt, else..? After printing, close window.

Problems? What happens ?

Bachelor Housing UML Use Case Requirements Generation Diagrams

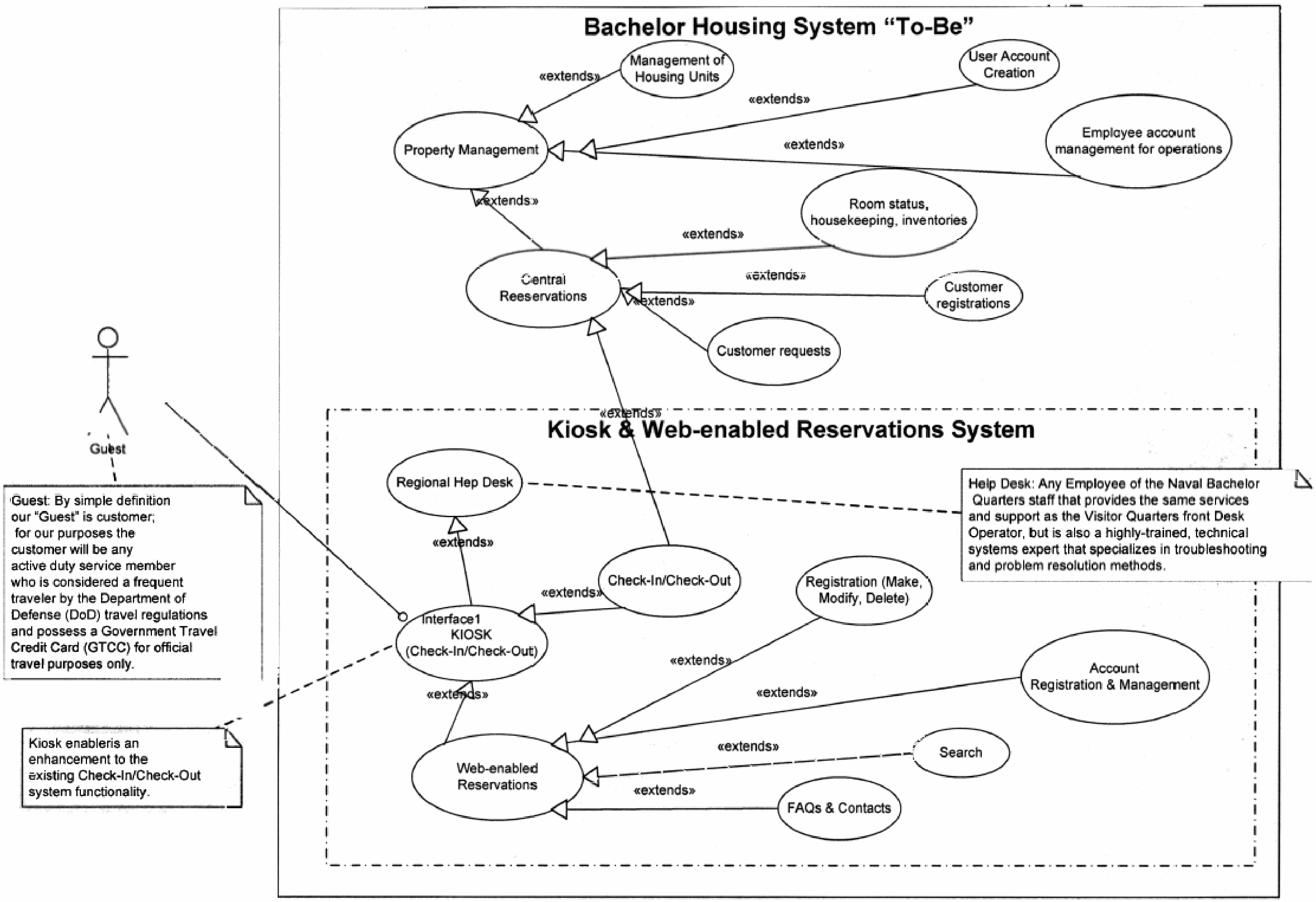


Sub-set to demo relationships

* Relationships indicate pathways along information can be sent. No relationship - can't send messages between each other.

Needs to be....

Bachelor Housing UML Use Case Requirements Generation Diagrams



Guest: By simple definition our "Guest" is customer; for our purposes the customer will be any active duty service member who is considered a frequent traveler by the Department of Defense (DoD) travel regulations and possess a Government Travel Credit Card (GTCC) for official travel purposes only.

Help Desk: Any Employee of the Naval Bachelor Quarters staff that provides the same services and support as the Visitor Quarters front Desk Operator, but is also a highly-trained, technical systems expert that specializes in troubleshooting and problem resolution methods.

Kiosk enableris an enhancement to the existing Check-In/Check-Out system functionality.

APPENDIX C. REQUIREMENTS ANALYSIS USE CASE SCENARIOS

Appendix C contains the “fully dressed” Use Case Scenarios for the instances of Guest-System interface for Kiosk Check-In, Check-Out procedures, and for the Kiosk interface with the Bachelor Housing Web Reservations System.

Actors: a role that a user plays with respect to the system (Actors carry out use cases); it has a specific behavior (for ex. can be a person, a computer system, or an organization).

Primary Actors Defined: Primary actors have goals that are fulfilled through using services of the system…they call upon the system to help them.

Guest: By simple definition our “Guest” is customer; for our purposes the customer will be any active duty service member who is considered a frequent traveler by the Department of Defense (DoD) travel regulations and possess a Government Travel Credit Card (GTCC) for official travel purposes only.

Visitors Quarters Front Desk Operator: Any Employee of the Naval Bachelor Quarters staff that provides services and support for Guest in all manner of things pertaining to reservations, check-in/check-out and general customer assistance. (Employees include: All levels of Management, Supervisors, and Front Desk Clerks)

Help Desk: Any Employee of the Naval Bachelor Quarters staff that provides the same services and support as the Visitor Quarters front Desk Operator, but is also a highly-trained, technical systems expert that specializes in troubleshooting and problem resolution methods.

Primary Actor Goals:

Guest: Wants a process that provides them with a customer service oriented, user-friendly, highly-efficient and expedient reservations and Quarter’s check-in/out system.

Visitors Quarters Front Desk Operator: To provide the guest with a pleasing customer service and lodging experience that not only enhances the stay of the Guest, but also enhances the appeal for Guest to want to utilize the Visitor Quarters in the future for both official and leave and liberty travel.

Help Desk: To provide the Guest with the most expedient customer service and problem resolution possible.

Supporting Actors Defined: Provide services to the system under design

Use Case UC1: Kiosk Check-In

Primary Actor: Guest (Service member)
Stakeholders and Interest:
-Guest: Wants a fast, uncomplicated and user-friendly check-in process.
-Visitors Quarters Front Desk Operator: Wants to be able to provide the Guest with superior service by offering a fast, easy, error-free check-in process. Additionally they want to be able to accurately record and track all user transactions in order to facilitate all manner of things related to guest history, operations management and financial transaction functions.
-Regional Help Desk: Wants to be able to provide the Guest with immediate problem resolution should a system related problem arise or override transaction be required for Guest check-in.
Help Desk provides necessary assistance with full functionality of system overrides and access.
Help Desk functions are to provide needed assistance for any type of reservation, check-in, check-out, billing transactions problems. Additionally the help desk is there as a local emergency services contacting source (i.e. fire, police, rescue, maintenance, etc…). Help Desk is to be accessible via a web-cam link and is manned: 24/7/365.

Preconditions:
Kiosk, Web Enabled Reservations and Property Management Systems are fully functional. The service member (Guest) must have already completed the reservations process through the web-enabled reservation system and received confirmation of that reservation.
Success Guarantee (Postconditions): A successful check-in transaction has occurred, was recorded and updated in the Visitors

Quarters' Property Management System. The Guest has received his/her room assignment, room key and map.

Main Success Scenario (or Basic Flow):

1. User enters Reservation Confirmation Number. (Alternative experimental method for Guest authentication is the use of the Common Access Card (CAC) to verify user identity)*
2. System retrieves and displays reservation information from system database.
3. System prompts Guest to verify correct information.
4. Guest verifies correct information and selects "Continue" to continue transaction.
5. System displays visiting quarters "Terms of Agreement" Form (The Terms of Agreement are the rules and regulations of Guest stay in all Visitors Quarters, a mandatory acknowledgement of said agreement is required to complete the check-in process) and awaits Guest acknowledgement.
6. Guest acknowledges receipt and understanding of the "Terms of Agreement" by clicking "I Accept".
7. System retrieves and displays Guest "Room Assignment" information and prompts user to swipe room key, once key is encoded the system will verify the process is complete and prompt the user to click "OK".
8. System will then display a map of the quarters (room) location (the Guest has the option to print out the map, if the Guest clicks "Print Room & Map Information" the system will then print out the displayed room and map information.
9. Guest exits the system by clicking on the "Exit" function.
10. System displays a "Thank You" message and defaults to the main welcome screen.

Extensions (or Alternative Flows):

*If at any time there is a catastrophic system failure:

i. The Kiosk will default to the "Help Desk" Screen or display a "Temporarily-Out-of-Service" message.

ii. System technician(s) will be notified of system status and troubleshoot in order to determine and correct the problematic nature of discrepancy.

iii. Upon correction of discrepancy the technician(s) will reboot system. And return it to its normal operating status.

1a. Invalid or incorrect Reservation Confirmation Number is entered:

1. Guest will be prompted to re-enter his/her Reservation Confirmation Number.
2. If Reservation Confirmation Number is not validated after a few attempts, the Guest will be directed to the "Help Desk" for further assistance.
3. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 5) and completion of the check-in process.
4. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
5. The system will default to the main welcome screen.

2a. System cannot retrieve reservation information from the database:

1. The system will return a message indicating the information cannot be found.
2. The Guest will then be directed to the "Help Desk" for further assistance.
3. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 5) and completion of the check-in process.

4. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
5. The system will default to the main welcome screen.

4a. Guest verifies information is not correct and selects “No” to continue transaction.

1. The Guest will then be directed to the “Help Desk” for further assistance.
2. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 5) and completion of the check-in process.
3. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
4. The system will default to the main welcome screen.

6a. Guest acknowledges receipt and understanding of the “Terms of Agreement” by clicking “Do Not Accept.”

1. The Guest will be directed to the “Help Desk” for resolution (if resolution is achieved skip to step 3) and completion of the check-in process.
2. If resolution is not achieved, the Help Desk will direct the Guest to the Front Desk for further assistance.
3. The system will default to the main welcome screen.

7a. System does not retrieve and displays Guest “Room Assignment” information.

1. Guest should immediately contact the “Help Desk” for assistance.
2. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 4) and completion of the check-in process.
3. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
4. The system will default to the main welcome screen

7b. System prompts user to swipe room key, but fails in the encoding process. Guest should immediately contact the “Help Desk” for assistance.

1. The Guest should immediately contact the “Help Desk” for resolution.
2. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 4) and completion of the check-in process.
3. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
4. The system will default to the main welcome screen

8a. The System fails to display and or print the map of the quarters (room).

1. The user can either contact the “Help Desk” for resolution of the problem (if resolution is achieved skip to step 3) and completion of the check-in process.
2. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
3. The system will default to the main welcome screen

Special Requirements:

-Touch screen Graphic User Interface (GUI) on large flat-panel monitor. Text and buttons must be adequately formatted to allow for easy viewing and error free touch-screen operation.

-Keyboard with Card Reader functionality (for use of CAC for Guest validation) and mouse is required for data entry/Guest input.

-Need to be able to incorporate a self diagnostic function to alert Front Desk when system is not operating within normal parameters or is non-functional.

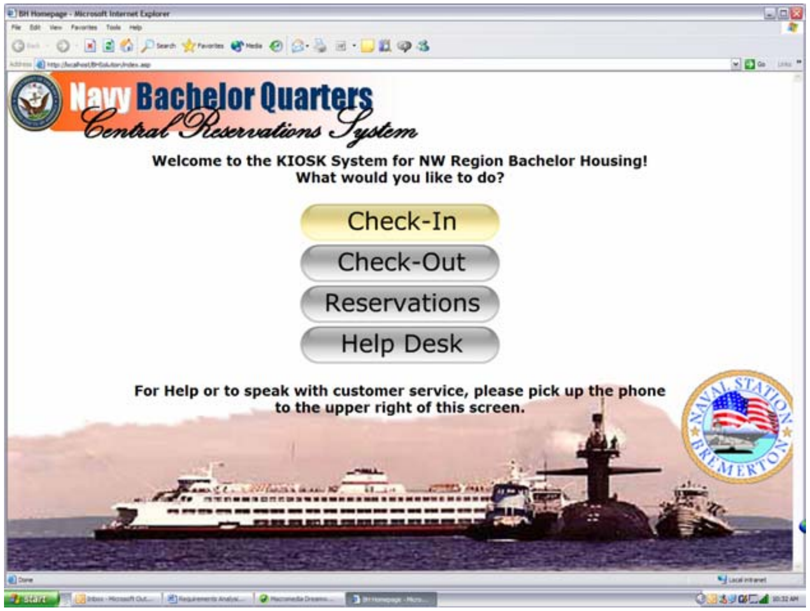
-Kiosk needs to be configured with a Key Dispenser (and receptacle)/Key Encoder.
-Kiosk needs to be configured with Web-Cam and internet capability for Help Desk communications. The System displays detailed Web-Cam screen and connection mechanism for initiating live communications for the Help Desk.

Technology and Data Variations List:
N/A

Frequency of Occurrence:
Kiosk operation should be continuous.

Open Issues:
-Explore credit card transactions and authorizations at Kiosk.

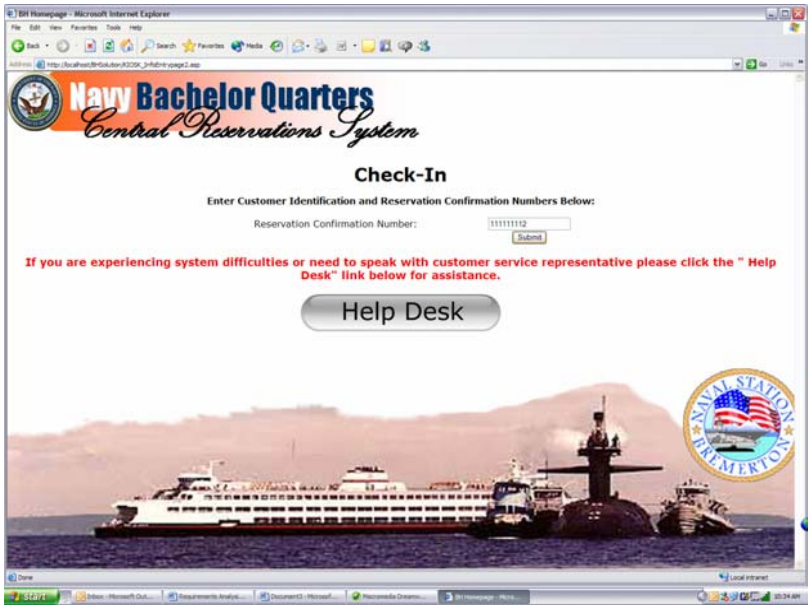
Kiosk Screenshots for UC1



Welcome to the KIOSK System for NW Region Bachelor Housing!
What would you like to do?

For Help or to speak with customer service, please pick up the phone to the upper right of this screen.

This is a display of the Kiosk main screen awaiting user interaction/input for guest Check-In.



Check-In

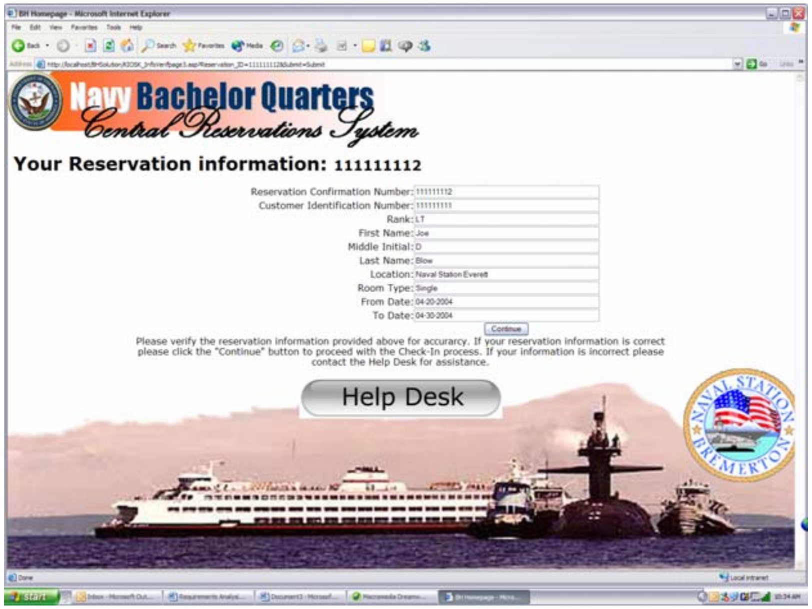
Enter Customer Identification and Reservation Confirmation Numbers Below:

Reservation Confirmation Number: 111111112

Submit

If you are experiencing system difficulties or need to speak with customer service representative please click the " Help Desk" link below for assistance.

11. User enters Reservation Confirmation Number. (Alternative experimental method for Guest authentication is the use of the Common Access Card (CAC) to verify user identity)*



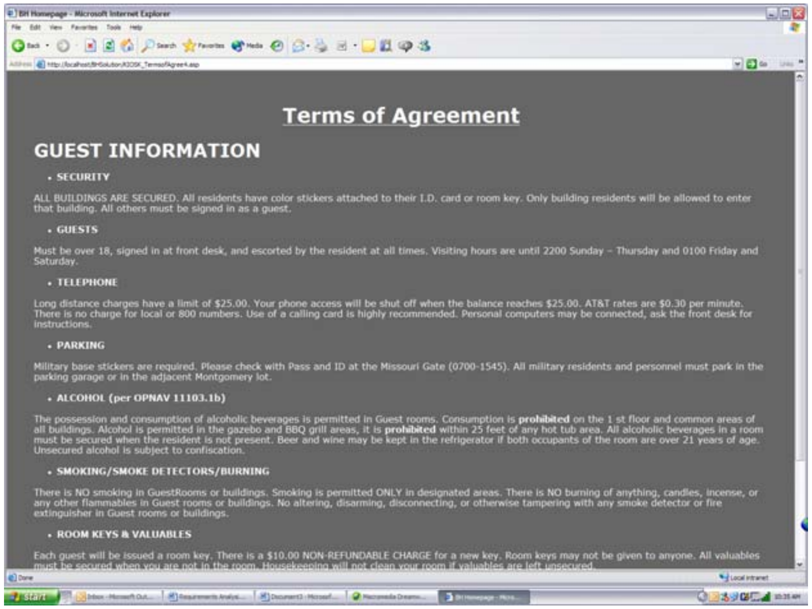
Your Reservation information: 111111112

Reservation Confirmation Number:	111111112
Customer Identification Number:	111111111
Rank:	LT
First Name:	Joe
Middle Initial:	D
Last Name:	Blow
Location:	Naval Station Everett
Room Type:	Single
From Date:	04-20-2004
To Date:	04-30-2004

Continue

Please verify the reservation information provided above for accurarcy. If your reservation information is correct please click the "Continue" button to proceed with the Check-In process. If your information is incorrect please contact the Help Desk for assistance.

12. System retrieves and displays reservation information from system database.
13. System prompts Guest to verify correct information.
14. Guest verifies correct information and selects "Continue" to continue transaction.


BH Homepage - Microsoft Internet Explorer
http://localhost/BHSolution/KIOSK_TermsofAgree4.asp

Terms of Agreement

GUEST INFORMATION

- **SECURITY**

ALL BUILDINGS ARE SECURED. All residents have color stickers attached to their I.D. card or room key. Only building residents will be allowed to enter that building. All others must be signed in as a guest.

- **GUESTS**

Must be over 18, signed in at front desk, and escorted by the resident at all times. Visiting hours are until 2200 Sunday – Thursday and 0100 Friday and Saturday.

- **TELEPHONE**

Long distance charges have a limit of $25.00. Your phone access will be shut off when the balance reaches $25.00. AT&T rates are $0.30 per minute. There is no charge for local or 800 numbers. Use of a calling card is highly recommended. Personal computers may be connected, ask the front desk for instructions.

- **PARKING**

Military base stickers are required. Please check with Pass and ID at the Missouri Gate (0700-1545). All military residents and personnel must park in the parking garage or in the adjacent Montgomery lot.

- **ALCOHOL (per OPNAV 11103.1b)**

The possession and consumption of alcoholic beverages is permitted in Guest rooms. Consumption is **prohibited** on the 1 st floor and common areas of all buildings. Alcohol is permitted in the gazebo and BBQ grill areas, it is **prohibited** within 25 feet of any hot tub area. All alcoholic beverages in a room must be secured when the resident is not present. Beer and wine may be kept in the refrigerator if both occupants of the room are over 21 years of age. Unsecured alcohol is subject to confiscation.

- **SMOKING/SMOKE DETECTORS/BURNING**

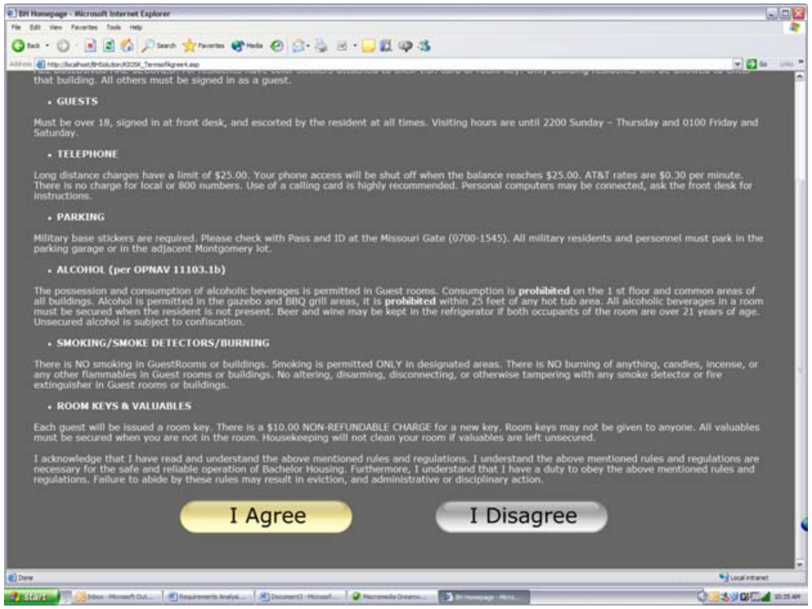
There is NO smoking in GuestRooms or buildings. Smoking is permitted ONLY in designated areas. There is NO burning of anything, candles, incense, or any other flammables in Guest rooms or buildings. No altering, disarming, disconnecting, or otherwise tampering with any smoke detector or fire extinguisher in Guest rooms or buildings.

- **ROOM KEYS & VALUABLES**

Each guest will be issued a room key. There is a $10.00 NON-REFUNDABLE CHARGE for a new key. Room keys may not be given to anyone. All valuables must be secured when you are not in the room. Housekeeping will not clean your room if valuables are left unsecured.

Main Success Scenario (or Basic Flow):

15. System displays visiting quarters "Terms of Agreement" Form (The Terms of Agreement are the rules and regulations of Guest stay in all Visitors Quarters, a mandatory acknowledgement of said agreement is required to complete the check-in process) and awaits Guest acknowledgement.


BH Homepage - Microsoft Internet Explorer
http://localhost/BHSolution/KIOSK_TermsofAgree4.asp
I Agree
I Disagree

that building. All others must be signed in as a guest.

- **GUESTS**

Must be over 18, signed in at front desk, and escorted by the resident at all times. Visiting hours are until 2200 Sunday – Thursday and 0100 Friday and Saturday.

- **TELEPHONE**

Long distance charges have a limit of $25.00. Your phone access will be shut off when the balance reaches $25.00. AT&T rates are $0.30 per minute. There is no charge for local or 800 numbers. Use of a calling card is highly recommended. Personal computers may be connected, ask the front desk for instructions.

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Military base stickers are required. Please check with Pass and ID at the Missouri Gate (0700-1545). All military residents and personnel must park in the parking garage or in the adjacent Montgomery lot.

- **ALCOHOL (per OPNAV 11103.1b)**

The possession and consumption of alcoholic beverages is permitted in Guest rooms. Consumption is **prohibited** on the 1 st floor and common areas of all buildings. Alcohol is permitted in the gazebo and BBQ grill areas, it is **prohibited** within 25 feet of any hot tub area. All alcoholic beverages in a room must be secured when the resident is not present. Beer and wine may be kept in the refrigerator if both occupants of the room are over 21 years of age. Unsecured alcohol is subject to confiscation.

- **SMOKING/SMOKE DETECTORS/BURNING**

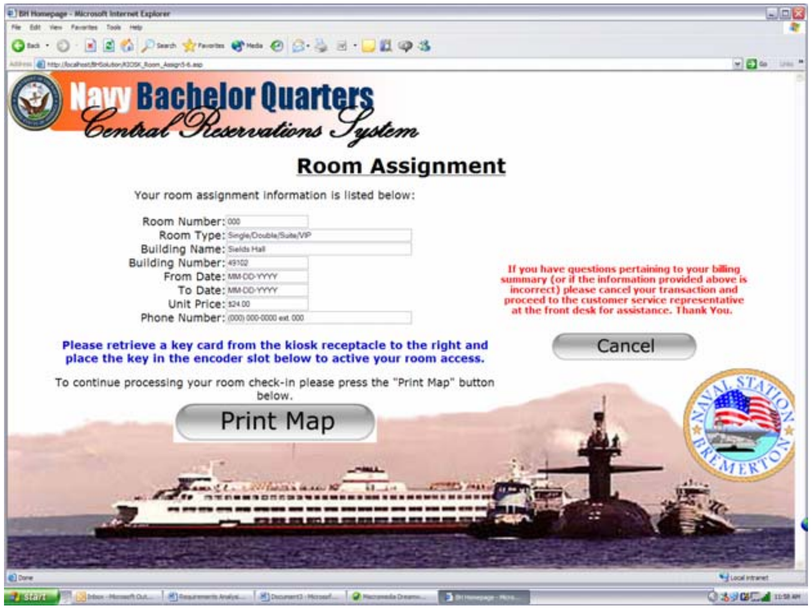
There is NO smoking in GuestRooms or buildings. Smoking is permitted ONLY in designated areas. There is NO burning of anything, candles, incense, or any other flammables in Guest rooms or buildings. No altering, disarming, disconnecting, or otherwise tampering with any smoke detector or fire extinguisher in Guest rooms or buildings.

- **ROOM KEYS & VALUABLES**

Each guest will be issued a room key. There is a $10.00 NON-REFUNDABLE CHARGE for a new key. Room keys may not be given to anyone. All valuables must be secured when you are not in the room. Housekeeping will not clean your room if valuables are left unsecured.

I acknowledge that I have read and understand the above mentioned rules and regulations. I understand the above mentioned rules and regulations are necessary for the safe and reliable operation of Bachelor Housing. Furthermore, I understand that I have a duty to obey the above mentioned rules and regulations. Failure to abide by these rules may result in eviction, and administrative or disciplinary action.

16. Guest acknowledges receipt and understanding of the "Terms of Agreement" by clicking "I Accept".



Room Assignment

Your room assignment information is listed below:

Room Number:	000
Room Type:	Single/Double/Suite/VIP
Building Name:	Sields Hall
Building Number:	49102
From Date:	MM-DD-YYYY
To Date:	MM-DD-YYYY
Unit Price:	$24.00
Phone Number:	(000) 000-0000 ext. 000

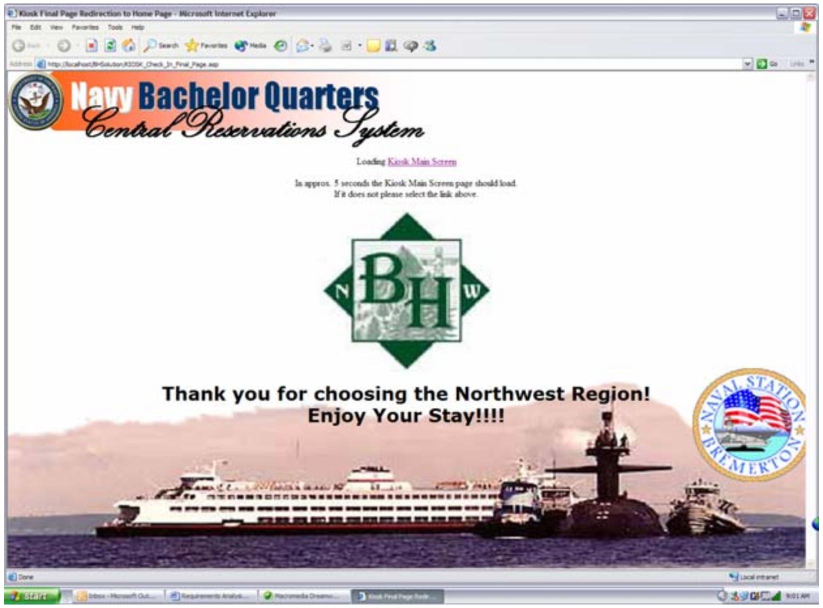
If you have questions pertaining to your billing summary (or if the information provided above is incorrect) please cancel your transaction and proceed to the customer service representative at the front desk for assistance. Thank You.

Please retrieve a key card from the kiosk receptacle to the right and place the key in the encoder slot below to active your room access.

To continue processing your room check-in please press the "Print Map" button below.

17. System retrieves and displays Guest “Room Assignment” information and prompts user to swipe room key, once key is encoded the system will verify the process is complete and prompt the user to click “OK”.

18. System will then display a map of the quarters (room) location (the Guest has the option to print out the map, if the Guest clicks “Print Room & Map Information” the system will then print out the displayed room and map information.



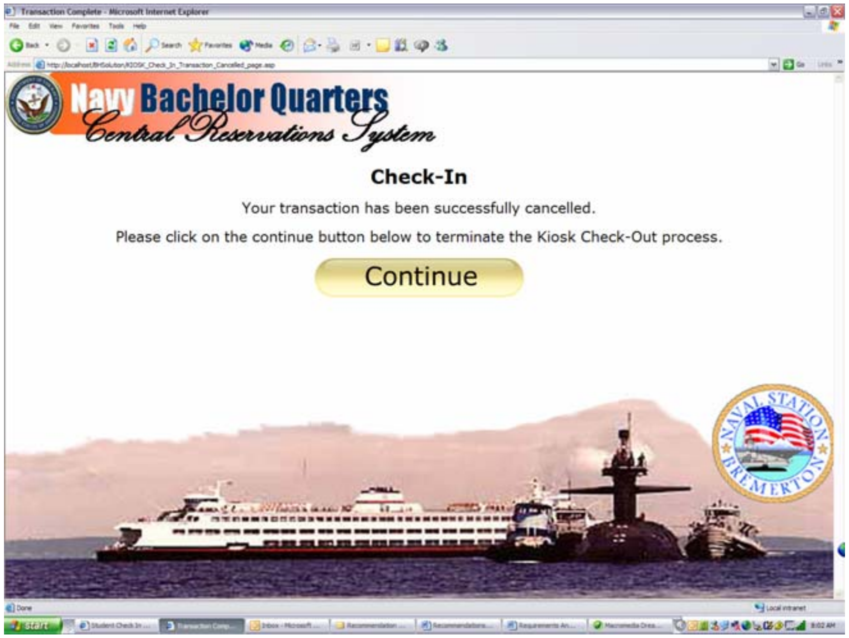
Loading Kiosk Main Screen

In approx. 5 seconds the Kiosk Main Screen page should load.
If it does not please select the link above.

Thank you for choosing the Northwest Region!
Enjoy Your Stay!!!!

19. Guest exits the system by clicking on the “Exit” function.

20. System displays a “Thank You” message and defaults to the main welcome screen.


Transaction Complete - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Media
http://localhost/BHSolution/KIOSK_Check_In_Transaction_Cancelled_page.asp
Go
Links
Navy Bachelor Quarters
Central Reservations System
Continue
NAVAL STATION BREMERTON
Done
Local intranet
start

Check-In

Your transaction has been successfully cancelled.

Please click on the continue button below to terminate the Kiosk Check-Out process.

*Alternate Flow in instance of user cancellation during Check-In process.

Use Case UC2: Kiosk Check-Out

Primary Actor: Guest (Service member)
Stakeholders and Interest:
-Guest: Wants a fast, uncomplicated and seamless check-out process to include a receipt that provides all charges, stay history and final financial transaction(s) for settlement of travel expenses.
-Visitors Quarters Front Desk Operator: Wants to be able to provide the Guest with superior service by offering a fast, easy, error-free check-out process. Additionally they want to be able to accurately record and track all user transactions in order to facilitate all manner of things related to guest history, operations management and financial transaction functions.
-Regional Help Desk: Wants to be able to provide the Guest with immediate problem resolution should a system related problem arise or override transaction be required for Guest check-out.

Preconditions:
Kiosk, Web Enabled Reservations and Property Management Systems are fully functional. The service member (Guest) must have already completed the check-in process through either the Kiosk or Front Desk operations.
Success Guarantee (Postconditions): A successful check-out transaction has occurred, was recorded and updated in the Visitors Quarters' Property Management System. The Guest has received his/her detailed, line-item receipt and returned the room key to the appropriate location.

Main Success Scenario (or Basic Flow):
1. User enters Reservation Confirmation Number. (Alternative experimental method for Guest authentication is the use of the Common Access Card (CAC) to verify user identity)*
2. System retrieves and displays reservation information from system database.
3. System prompts Guest to verify correct information.
4. Guest verifies correct information and selects "Continue" to continue transaction.
5. System retrieves and displays room stay history and complete line-item billing information from system database.
6. System prompts Guest to verify correct information and process final transaction. (System notifies guest that charges will be applied to previously captured Credit Card (CC) information from the reservation process, that is currently contained in the system)

7. Guest verifies correct information and selects “Process” to continue transaction and print out receipt.
8. System process the transaction and prints out a transaction receipt with captured payment data, and proceeds automatically to display instructions for returning the room key to the receptacle followed by a “Thank You” message and a default return to the main welcome screen.

Extensions (or Alternative Flows):

i. *If at any time there is a catastrophic system failure:
ii. The Kiosk will default to the “Help Desk” Screen or display a “Temporarily-Out-of-Service” message.
iii. System technician(s) will be notified of system status and troubleshoot in order to determine and correct the problematic nature of discrepancy.
iv. Upon correction of discrepancy the technician(s) will reboot system. And return it to its normal operating status.

1a. Invalid or incorrect reservation confirmation number is entered:
1. Guest will be prompted to re-enter his/her reservation confirmation number.
2. If reservation confirmation number is not validated after a few attempts, the Guest will be directed to the “Help Desk” for further assistance.
3. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 5) and completion of the check-in process.
4. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
5. The system will default to the main welcome screen.

2a. System cannot retrieve stay history and billing information from the database:
1. The system will return a message indicating the information cannot be found.
2. The Guest will then be directed to the “Help Desk” for further assistance.
3. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 5) and completion of the check-in process.
4. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
5. The system will default to the main welcome screen.

2b. System retrieves the incorrect room history or billing information:
1. Guest will be notified to cancel the transaction and proceed to the Front Desk for further assistance with the Check-Out Process.
2. The system will default to the main welcome screen.

3a. Guest verifies information is not correct and selects “Cancel” to continue transaction.
1. The Guest will then be directed to the Front Desk for further assistance with the Check-Out process.
2. The system will default to the main welcome screen.

3b. Guest decides to utilize a CC other than the one on file in the reservations system:
1. Guest will be notified to “Cancel” the transaction and proceed to the Front Desk for further assistance with the Check-Out Process.
2. The system will default to the main welcome screen.

4a. Guest verifies information is not correct and does not select “Process” to continue the transaction.

1. The Guest will be prompted to select "Cancel" and then be directed to the Front Desk for further assistance with the Check-Out process.
2. The system will default to the main welcome screen.

5a. System fails to process Guest transaction.

1. Guest should immediately contact the "Help Desk" for assistance.
2. The Help Desk will assist the Guest in resolution of the problem (if resolution is achieved skip to step 4) and completion of the check-in process.
3. If a successful resolution is not achieved the Help Desk Representative will direct the Guest to the Front Desk for further assistance.
4. The system will default to the main welcome screen.

5b. The System fails to print out a transaction receipt of the detail bill and captured payment transaction.

1. The Guest should immediately proceed to the Front Desk for assistance.
2. The system will default to the main welcome screen

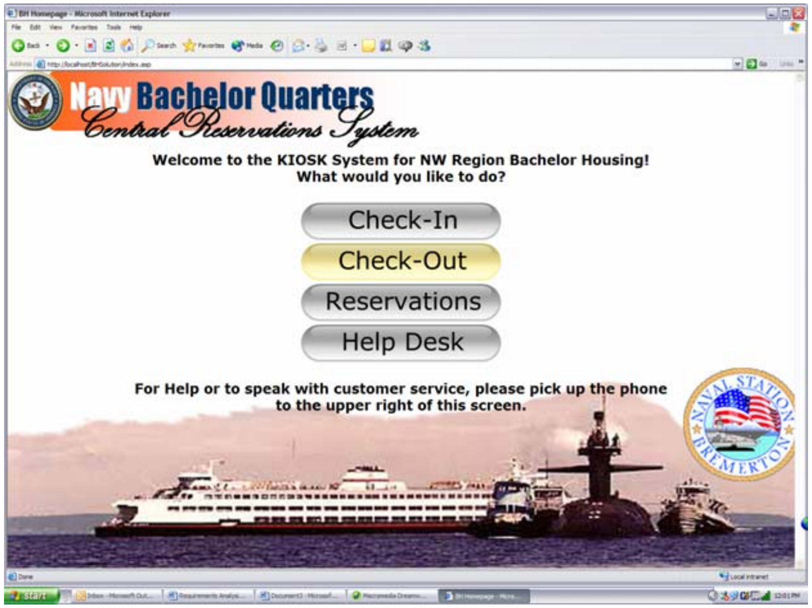
Special Requirements:
-Touch screen Graphic User Interface (GUI) on large flat-panel monitor. Text and buttons must be adequately formatted to allow for easy viewing and error free touch-screen operation.
-Keyboard with Card Reader functionality (for use of CAC for Guest validation) and mouse is required for data entry/Guest input.
-Need to be able to incorporate a self diagnostic function to alert Front Desk when system is not operating within normal parameters or is non-functional.
-Kiosk needs to be configured with a Key Dispenser (and receptacle)/Key Encoder.
-Kiosk needs to be configured with Web-Cam and internet capability for Help Desk communications. The System displays detailed Web-Cam screen and connection mechanism for initiating live communications for the Help Desk.

Technology and Data Variations List:
N/A

Frequency of Occurrence:
Kiosk operation should be continuous.

Open Issues:
-Explore credit card transactions and authorizations at Kiosk.

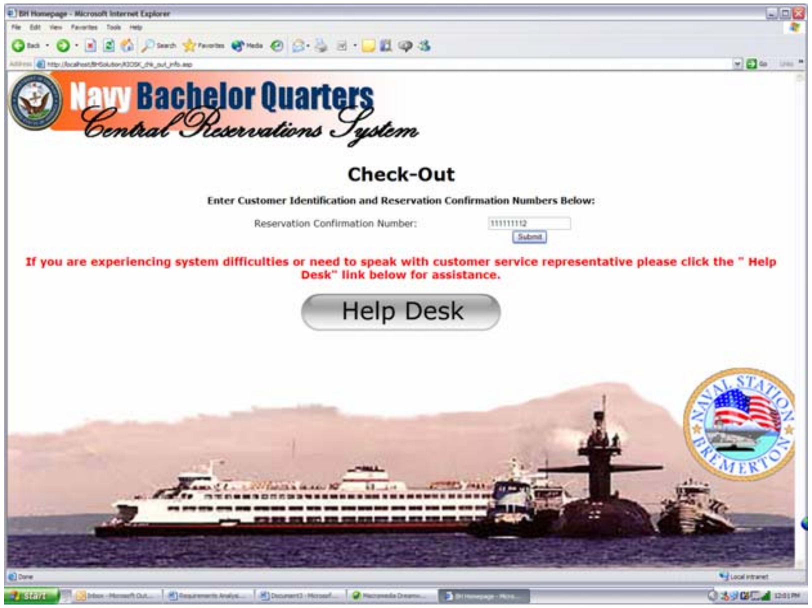
Kiosk Screenshots for UC2



Welcome to the KIOSK System for NW Region Bachelor Housing!
What would you like to do?

For Help or to speak with customer service, please pick up the phone to the upper right of this screen.

This is a display of the Kiosk main screen awaiting user interaction/input for guest Check-Out.


BH Homepage - Microsoft Internet Explorer
File Edit View Favorites Tools Help
http://localhost/BHSolution/KIOSK_chk_out_info.asp
Navy Bachelor Quarters
Central Reservations System
Naval Station Bremerton

Check-Out

Enter Customer Identification and Reservation Confirmation Numbers Below:

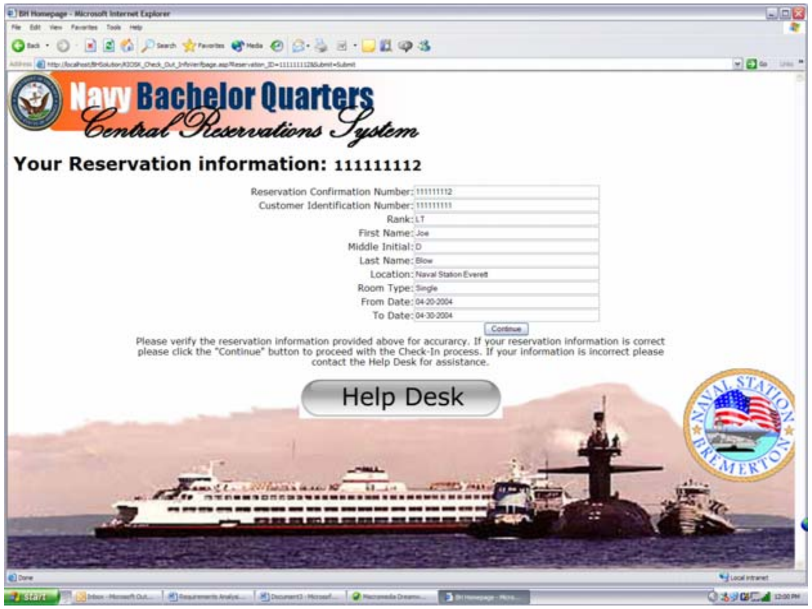
Reservation Confirmation Number: 111111112

Submit

If you are experiencing system difficulties or need to speak with customer service representative please click the " Help Desk" link below for assistance.

Help Desk

1. User enters Reservation Confirmation Number. (Alternative experimental method for Guest authentication is the use of the


BH Homepage - Microsoft Internet Explorer
File Edit View Favorites Tools Help
http://localhost/BHSolution/KIOSK_Check_Out_InfoVerifpage.asp?Reservation_ID=111111112&Submit=Submit
Navy Bachelor Quarters
Central Reservations System
Naval Station Bremerton

Your Reservation information: 111111112

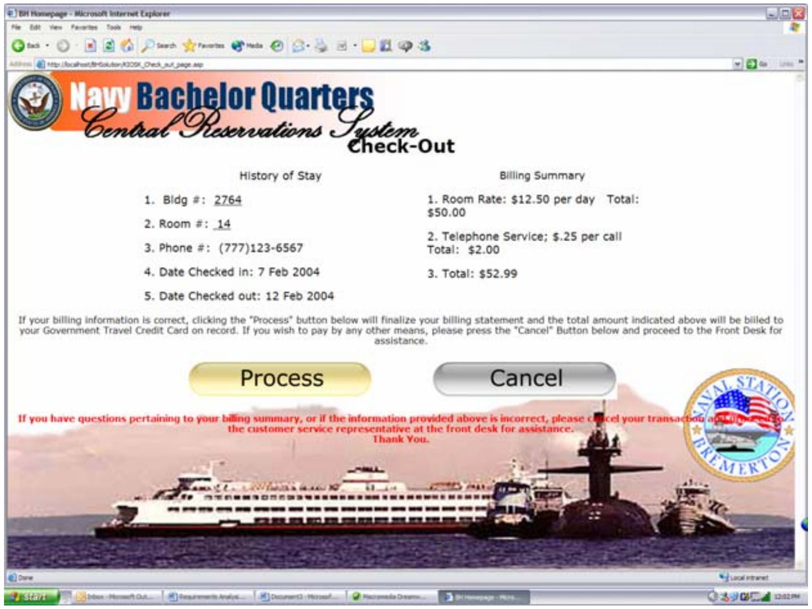
Reservation Confirmation Number:	111111112
Customer Identification Number:	111111111
Rank:	LT
First Name:	Joe
Middle Initial:	D
Last Name:	Blow
Location:	Naval Station Everett
Room Type:	Single
From Date:	04-20-2004
To Date:	04-30-2004

Continue

Please verify the reservation information provided above for accurarcy. If your reservation information is correct please click the "Continue" button to proceed with the Check-In process. If your information is incorrect please contact the Help Desk for assistance.

Help Desk

2. Common Access Card (CAC) to verify user identity)*
3. System retrieves and displays reservation information from system database.
4. System prompts Guest to verify correct information.
5. Guest verifies correct information and selects “Continue” to continue transaction.


BH Homepage - Microsoft Internet Explorer
Navy Bachelor Quarters
Central Reservations System
Process
Cancel
Naval Station Bremerton

Check-Out

History of Stay

1. Bldg #: 2764
2. Room #: 14
3. Phone #: (777)123-6567
4. Date Checked in: 7 Feb 2004
5. Date Checked out: 12 Feb 2004

Billing Summary

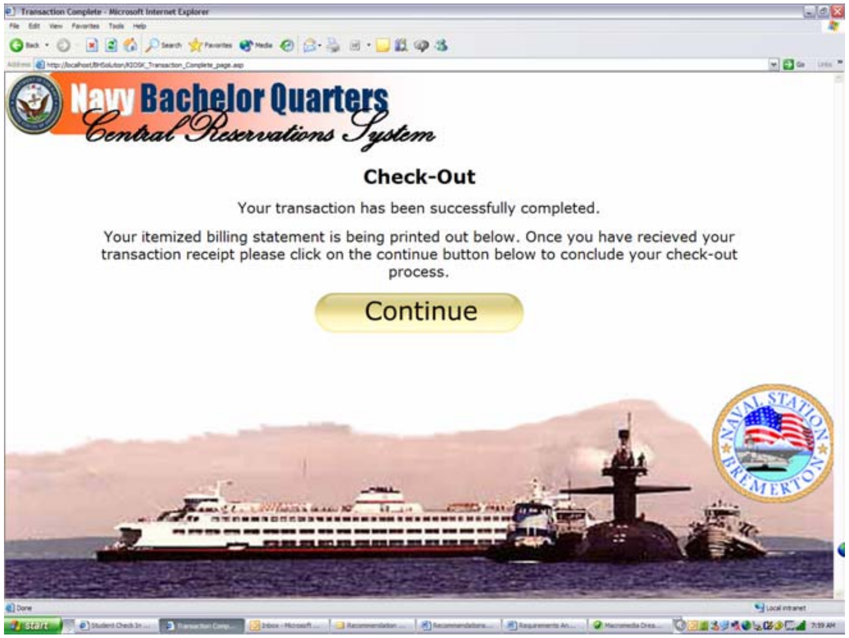
1. Room Rate: $12.50 per day Total: $50.00
2. Telephone Service; $.25 per call Total: $2.00
3. Total: $52.99

If your billing information is correct, clicking the "Process" button below will finalize your billing statement and the total amount indicated above will be billed to your Government Travel Credit Card on record. If you wish to pay by any other means, please press the "Cancel" Button below and proceed to the Front Desk for assistance.

If you have questions pertaining to your billing summary, or if the information provided above is incorrect, please cancel your transaction and proceed to the customer service representative at the front desk for assistance. Thank You.

6. System retrieves and displays room stay history and complete line-item billing information from system database. System prompts Guest to verify correct information and process final transaction. (System notifies guest that charges will be applied to previously captured Credit Card (CC) information from the reservation process, that is currently contained in the system)

7. Guest verifies correct information and selects "Process" to continue transaction and print out receipt.

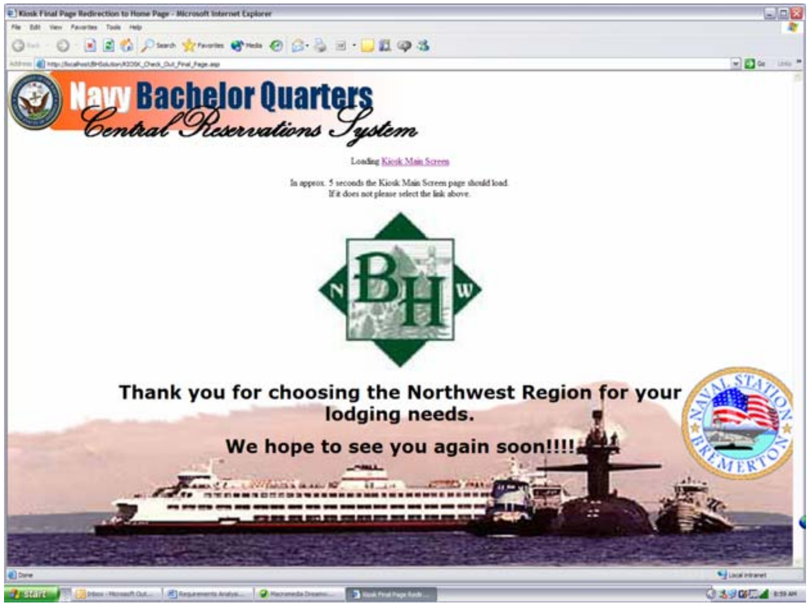

Transaction Complete - Microsoft Internet Explorer
Navy Bachelor Quarters
Central Reservations System
Continue
Naval Station Bremerton

Check-Out

Your transaction has been successfully completed.

Your itemized billing statement is being printed out below. Once you have recieved your transaction receipt please click on the continue button below to conclude your check-out process.

8. System process the transaction and prints out a transaction receipt with captured payment data, and proceeds automatically to display instructions for returning the room key to the receptacle followed by a "Thank You" message and a default return to the main welcome screen.



Kiosk Final Page Redirection to Home Page - Microsoft Internet Explorer

http://localhost/BHSolution/KIOSK_Check_Out_Final_Page.asp

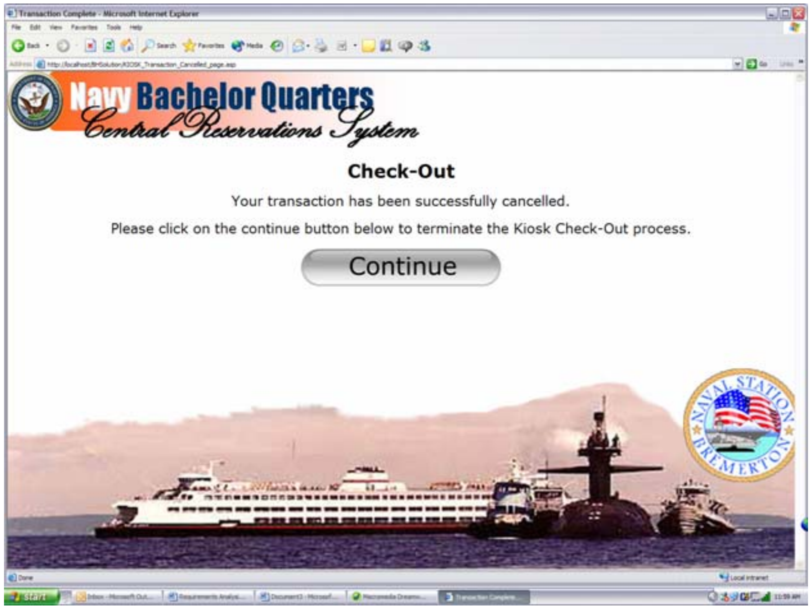
Loading Kiosk Main Screen

In approx. 5 seconds the Kiosk Main Screen page should load.
If it does not please select the link above.

Thank you for choosing the Northwest Region for your lodging needs.

We hope to see you again soon!!!!

Continued from previous…(Step 8.)



Transaction Complete - Microsoft Internet Explorer

http://localhost/BHSolution/KIOSK_Transaction_Cancelled_page.asp

Check-Out

Your transaction has been successfully cancelled.

Please click on the continue button below to terminate the Kiosk Check-Out process.

*Alternate Flow in instance of user cancellation during Check-Out process.

Use Case UC3: Guest Make Reservations via Kiosk User Interface

Primary Actor: Guest (Service member)
Stakeholders and Interest:
-Guest: Wants a fast, uncomplicated and user-friendly interface for making future reservations via the Web-enabled Reservations Website.
-Visitors Quarters Front Desk Operator: Wants to be able to provide the Guest with superior service by offering a fast, easy and error-free reservations process. Additionally they want to be able to accurately record and track all user transactions in order to facilitate all manner of things related to guest history, operations management and financial transaction functions.
-Regional Help Desk: Wants to be able to provide the Guest with immediate problem resolution should a system related problem arise or override transaction be required for Guest Reservations.

Preconditions:
Kiosk, Web Enabled Reservations and Property Management Systems are fully functional. Guest is a previously registered user of the Bachelor Quarters Reservations system.

Success Guarantee (Postconditions): A successful reservation transaction has occurred, was recorded and updated in the Visitors Quarters' Property Management System. The Guest has received his/her detailed reservation information and a confirmation number has been generated, transmitted and accepted by the system.

Main Success Scenario (or Basic Flow):

1. Guest clicks on the "Reservations" button on the Kiosk to open the system's browser window in full page/screen format for the user's access. (Guest can return to the Kiosk system at any time by simply closing the browser.)
2. Guest clicks on the hyperlink for user "Login" to gain unrestricted system access.
3. Guest searches for quarters by known location; specifying room type, from and to dates of desired stay and selects the "submit" button.
4. System displays requested reservation results and prompts the Guest to either "Make Reservation" or click "Search" to return to the main page to initiate a new search.
5. Guest selects the "Make Reservation" option.
6. System processes request for reservation and upon completion of processing, returns the confirmation results to the Guest to include: reservation inclusive dates, quarter's location and a randomly generated, 8-10 digit alphanumeric confirmation number.
7. Guest clicks "HOME" to conclude transaction.
8. System prompts for the Guest to Log Out.
9. Guest performs the "Log Out" function, the System exits the Web-enabled Reservations System and clicks "KIOSK" to return to the Kiosk main welcome screen.

Extensions (or Alternative Flows):
*If at any time there is a catastrophic system failure:

i. The Kiosk will default to the "Help Desk" Screen or display a "Temporarily-Out-of-Service" message.
ii. System technician(s) will be notified of system status and troubleshoot in order to determine and correct the problematic nature of discrepancy.
iii. Upon correction of discrepancy the technician(s) will reboot system. And return it to its normal operating status.

1a. Guest clicks on the “Reservations” button and is unable to access the Web-enabled Reservations System:

1. Guest should exit the browser and make another attempt at a connection via the “Reservations” button.
2. If after a few attempts a successful connection is not achieved, the Guest will be directed to close the browser and proceed to the “Front Desk” for further assistance.
3. The system will default to the Kiosk main welcome screen.

2a. Guest does not “Login” on the Web-Enabled Reservations System

1. System will allow the Guest to perform all functions of the “Search” criteria up to the “Make Reservation” instance of the process.
2. System will prompt the Guest to “Login” in order to proceed with the transaction.
3. Guest performs the “Login” process.
4. Upon a successful login the system will default to the previous Reservation Results screen to continue the “Make Reservation” process.

4a. System returns incorrect search results:

1. Guest should click on “Search” to re-initiate the search criteria.
2. System will return to the main Web-enabled Reservations System welcome screen.

6a. System fails to process request for reservation or fails to return reservation confirmation information.

1. Guest should re-initiate the search and make reservations process.
2. If system again fails to process the reservation, the System will prompt the Guest to Logout of the system, close the browser and try again at a later time.
3. The system will default to the Kiosk main welcome screen.

7a. System does not provide Guest with a print of the confirmation results.

1. Guest should continue the “Log Out” and exit functions and proceed to the Front Desk for further assistance.
2. The system will default to the Kiosk main welcome screen.

8a. System fails to display a prompt for the Guest to Log Out.

1. Guest should close the browser, thereby exiting the Web-enabled Reservations System and terminating his/her user session.
2. The System will default to the Kiosk main welcome screen.

9a. System fails to execute the Log Out or exit functions.

1. Guest should close the browser, thereby exiting the Web-enabled Reservations System and terminating his/her user session.
2. The System will default to the Kiosk main welcome screen.

Special Requirements:

-Touch screen Graphic User Interface (GUI) on large flat-panel monitor. Text and buttons must be adequately formatted to allow for easy viewing and error free touch-screen operation.

-Keyboard with Card Reader functionality (for use of CAC for Guest validation) and mouse is required for data entry/Guest input.

-Need to be able to incorporate a self diagnostic function to alert Front Desk when system is not operating within normal parameters or is non-functional.

-Kiosk needs to be configured with a Key Dispenser (and receptacle)/Key Encoder.

-Kiosk needs to be configured with Web-Cam and internet capability for Help Desk communications. The System displays detailed Web-Cam screen and connection mechanism for initiating live communications for the Help Desk.

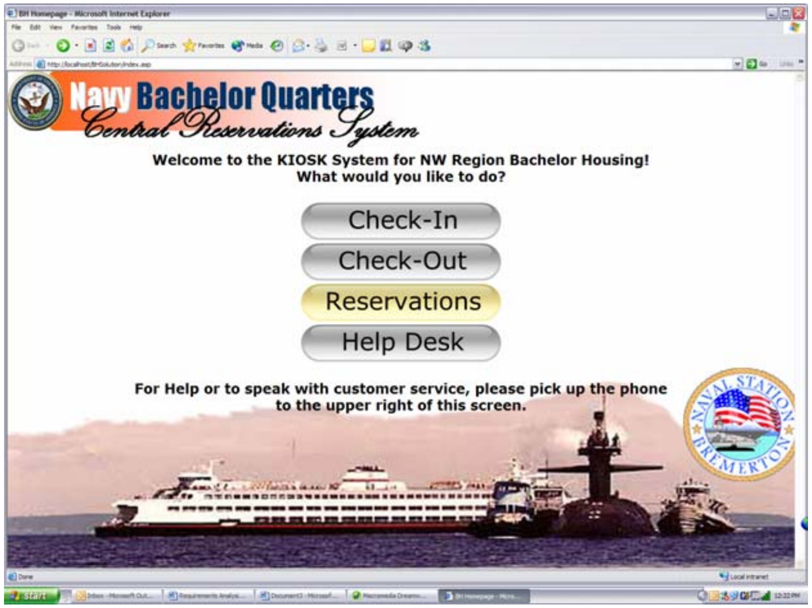
Technology and Data Variations List:

N/A

Frequency of Occurrence:
Kiosk and Web-Enabled Reservations System operations should be continuous.

Open Issues:

Kiosk Screenshots for UC2

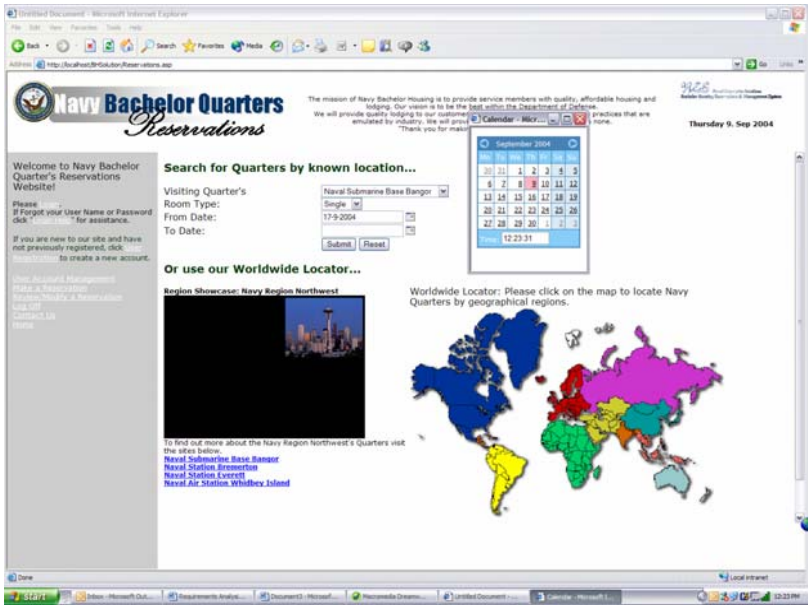


Welcome to the KIOSK System for NW Region Bachelor Housing!
What would you like to do?

For Help or to speak with customer service, please pick up the phone to the upper right of this screen.

This is a display of the Kiosk main screen awaiting user interaction/input for guest Reservations System access.

1. Guest clicks on the "Reservations" button on the Kiosk to open the system's browser window in full page/screen format for the user's access. (Guest can return to the Kiosk system at any time by simply closing the browser.)


Untitled Document - Microsoft Internet Explorer
Navy Bachelor Quarters Reservations
Calendar - Micr...
September 2004
Thursday 9. Sep 2004

The mission of Navy Bachelor Housing is to provide service members with quality, affordable housing and lodging. Our vision is to be the best within the Department of Defense. We will provide quality lodging to our custome[rs] … practices that are emulated by industry. We will prov[ide] … none. "Thank you for mak[ing] …

Welcome to Navy Bachelor Quarter's Reservations Website!

Please Login. If Forgot your User Name or Password click "Login Help" for assistance.

If you are new to our site and have not previously registered, click User Registration to create a new account.

Search for Quarters by known location...

Visiting Quarter's: Naval Submarine Base Bangor
Room Type: Single
From Date: 17-9-2004
To Date:

Submit Reset

Time: 12:23:31

Or use our Worldwide Locator...

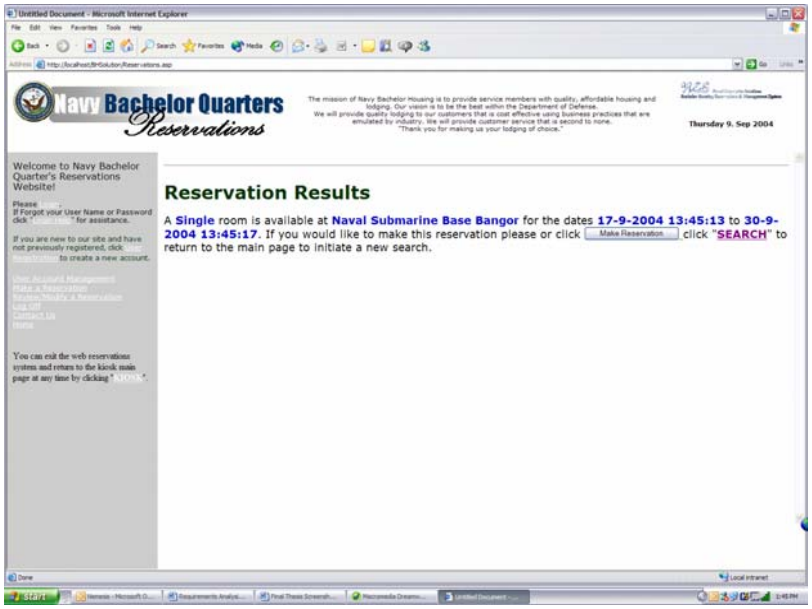
Region Showcase: Navy Region Northwest

Worldwide Locator: Please click on the map to locate Navy Quarters by geographical regions.

To find out more about the Navy Region Northwest's Quarters visit the sites below.
Naval Submarine Base Bangor
Naval Station Bremerton
Naval Station Everett
Naval Air Station Whidbey Island

2. Guest clicks on the hyperlink for user "Login" to gain unrestricted system access.

3. Guest searches for quarters by known location; specifying room type, from and to dates of desired stay and selects the "submit" button.


Untitled Document - Microsoft Internet Explorer
Navy Bachelor Quarters Reservations
Thursday 9. Sep 2004
Make Reservation

The mission of Navy Bachelor Housing is to provide service members with quality, affordable housing and lodging. Our vision is to be the best within the Department of Defense. We will provide quality lodging to our customers that is cost effective using business practices that are emulated by industry. We will provide customer service that is second to none. "Thank you for making us your lodging of choice."

Welcome to Navy Bachelor Quarter's Reservations Website!

Please Login. If Forgot your User Name or Password click "Login Help" for assistance.

If you are new to our site and have not previously registered, click User Registration to create a new account.

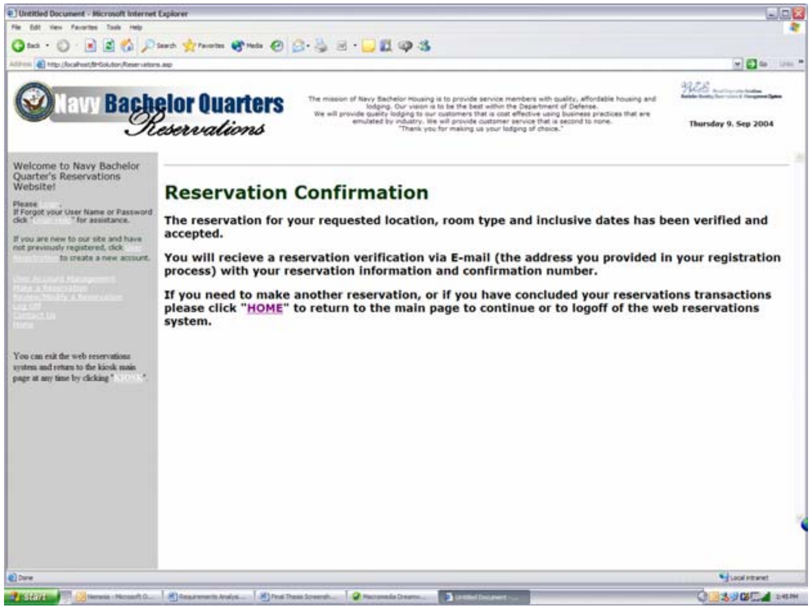
You can exit the web reservations system and return to the kiosk main page at any time by clicking "KIOSK".

Reservation Results

A Single room is available at Naval Submarine Base Bangor for the dates 17-9-2004 13:45:13 to 30-9-2004 13:45:17. If you would like to make this reservation please or click Make Reservation click "SEARCH" to return to the main page to initiate a new search.

4. System displays requested reservation results and prompts the Guest to either "Make Reservation" or click "Search" to return to the main page to initiate a new search.

5. Guest selects the "Make Reservation" option.



Untitled Document - Microsoft Internet Explorer

http://localhost/BHSolution/Reservations.asp

Navy Bachelor Quarters Reservations

The mission of Navy Bachelor Housing is to provide service members with quality, affordable housing and lodging. Our vision is to be the best within the Department of Defense. We will provide quality lodging to our customers that is cost effective using business practices that are emulated by industry. We will provide customer service that is second to none. "Thank you for making us your lodging of choice."

Thursday 9. Sep 2004

Welcome to Navy Bachelor Quarter's Reservations Website!

Please Login.
If Forgot your User Name or Password click "Login Help" for assistance.

If you are new to our site and have not previously registered, click User Registration to create a new account.

User Account Management
Make a Reservation
Review/Modify a Reservation
Log Off
Contact Us
Home

You can exit the web reservations system and return to the kiosk main page at any time by clicking "KIOSK".

Reservation Confirmation

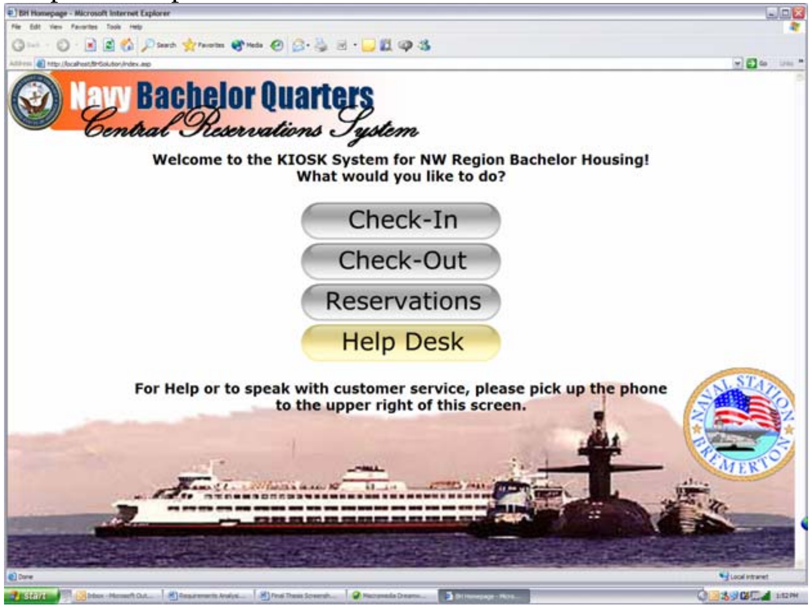
The reservation for your requested location, room type and inclusive dates has been verified and accepted.

You will recieve a reservation verification via E-mail (the address you provided in your registration process) with your reservation information and confirmation number.

If you need to make another reservation, or if you have concluded your reservations transactions please click "HOME" to return to the main page to continue or to logoff of the web reservations system.

6. System processes request for reservation and upon completion of processing, returns the confirmation results via e-mail to the Guest to include: reservation inclusive dates, quarter's location and a randomly generated, 8-10 digit alphanumeric confirmation number.
7. Guest clicks "HOME" to conclude transaction.
8. System prompts for the Guest to Log Out.
9. Guest performs the "Log Out" function, the System exits the Web-enabled Reservations System and clicks "KIOSK" to return to the Kiosk main welcome screen.

Help Desk Operations



BH Homepage - Microsoft Internet Explorer

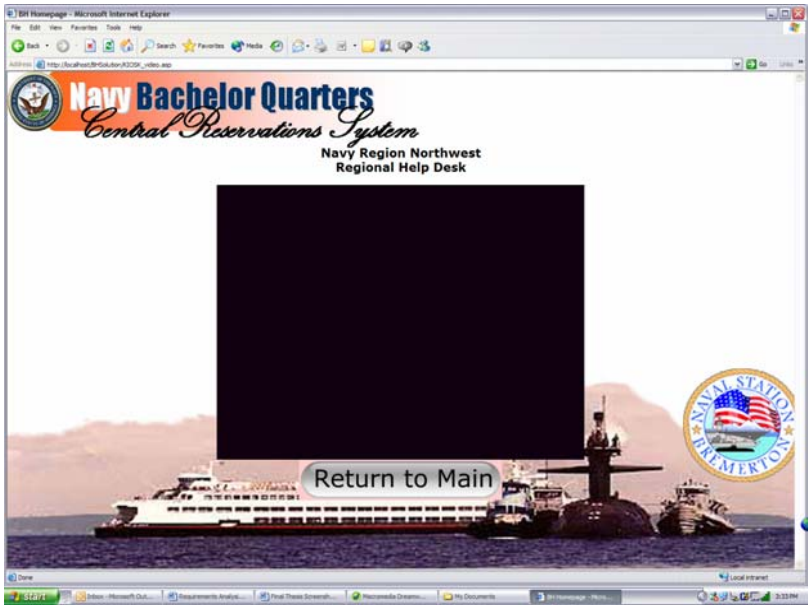
http://localhost/BHSolution/index.asp

Navy Bachelor Quarters Central Reservations System

Welcome to the KIOSK System for NW Region Bachelor Housing!
What would you like to do?

For Help or to speak with customer service, please pick up the phone to the upper right of this screen.

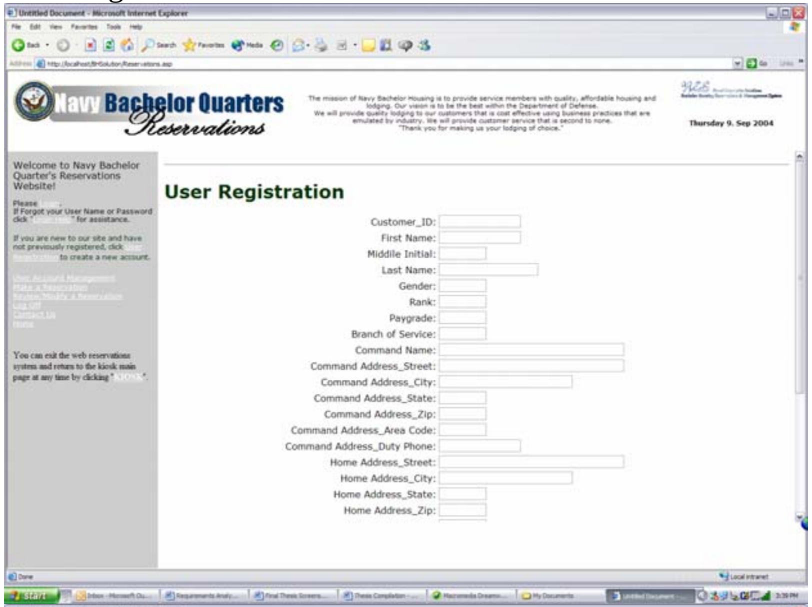
This is a display of the Kiosk main screen awaiting user interaction/input for guest Help Desk assistance.


BH Homepage - Microsoft Internet Explorer
http://localhost/BHSolution/KIOSK_video.asp
Navy Bachelor Quarters
Central Reservations System
Navy Region Northwest
Regional Help Desk
Return to Main
NAVAL STATION BREMERTON

*Once the Help Desk button is clicked a representative from the Regional Help Desk will appear via a video link to assist the guest with their request.

The user can exit this function by clicking on the "Return to Main" button.

User Registration and Account Modification Screenshots


Untitled Document - Microsoft Internet Explorer
http://localhost/BHSolution/Reservations.asp
Navy Bachelor Quarters
Reservations
User Account Management
Make a Reservation
Review/Modify a Reservation
Log Off
Contact Us
Home

The mission of Navy Bachelor Housing is to provide service members with quality, affordable housing and lodging. Our vision is to be the best within the Department of Defense.
We will provide quality lodging to our customers that is cost effective using business practices that are emulated by industry. We will provide customer service that is second to none.
"Thank you for making us your lodging of choice."

Thursday 9. Sep 2004

Welcome to Navy Bachelor Quarter's Reservations Website!

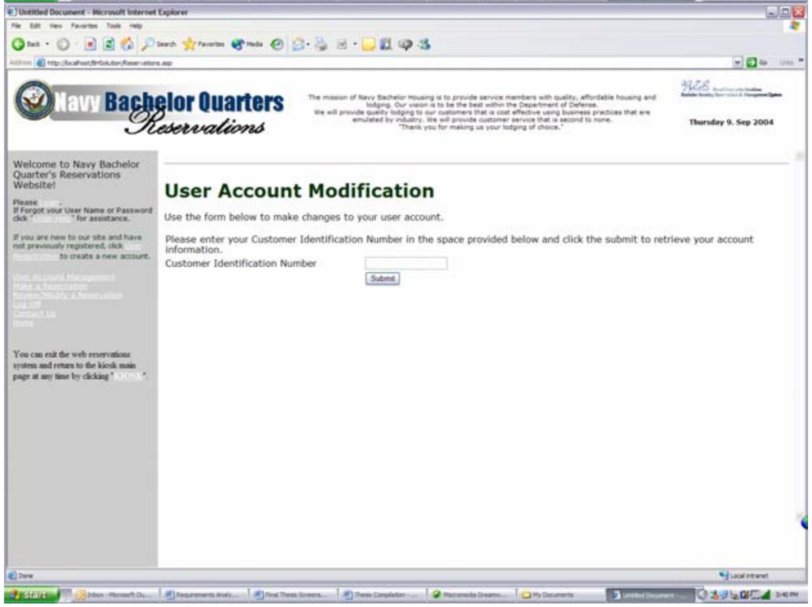
Please Login.
If Forgot your User Name or Password click "Login Help" for assistance.

If you are new to our site and have not previously registered, click User Registration to create a new account.

You can exit the web reservations system and return to the kiosk main page at any time by clicking "KIOSK".

User Registration

Customer_ID:
First Name:
Middile Initial:
Last Name:
Gender:
Rank:
Paygrade:
Branch of Service:
Command Name:
Command Address_Street:
Command Address_City:
Command Address_State:
Command Address_Zip:
Command Address_Area Code:
Command Address_Duty Phone:
Home Address_Street:
Home Address_City:
Home Address_State:
Home Address_Zip:


Untitled Document - Microsoft Internet Explorer
http://localhost/BHSolution/Reservations.asp
Navy Bachelor Quarters
Reservations
User Account Management
Make a Reservation
Review/Modify a Reservation
Log Off
Contact Us
Home
Submit

The mission of Navy Bachelor Housing is to provide service members with quality, affordable housing and lodging. Our vision is to be the best within the Department of Defense.
We will provide quality lodging to our customers that is cost effective using business practices that are emulated by industry. We will provide customer service that is second to none.
"Thank you for making us your lodging of choice."

Thursday 9. Sep 2004

Welcome to Navy Bachelor Quarter's Reservations Website!

Please Login.
If Forgot your User Name or Password click "Login Help" for assistance.

If you are new to our site and have not previously registered, click User Registration to create a new account.

You can exit the web reservations system and return to the kiosk main page at any time by clicking "KIOSK".

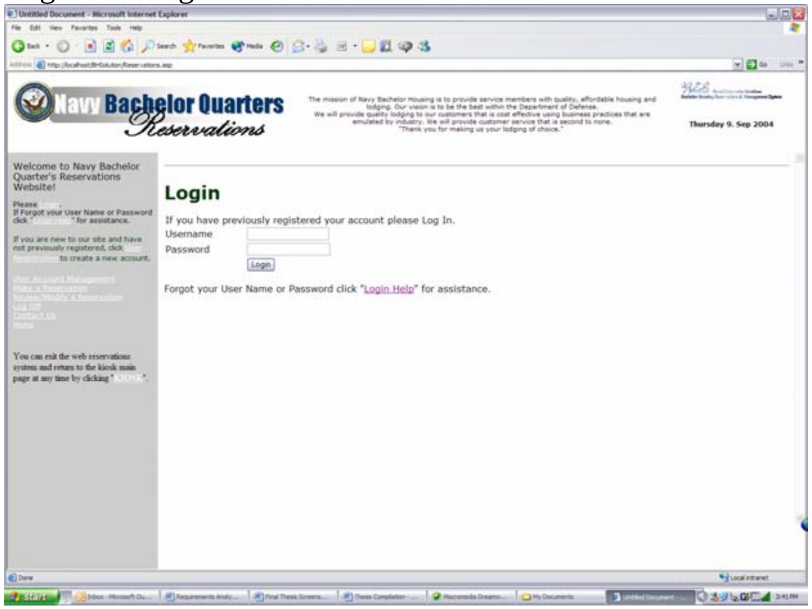
User Account Modification

Use the form below to make changes to your user account.

Please enter your Customer Identification Number in the space provided below and click the submit to retrieve your account information.

Customer Identification Number

Login and Login Assistance Screenshots


Untitled Document - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost/BHSolution/Reservations.asp
Go Links
Navy Bachelor Quarters Reservations
Login
User Account Management
Make a Reservation
Review/Modify a Reservation
Log Off
Contact Us
Home
Done
Local intranet
start
3:41 PM

The mission of Navy Bachelor Housing is to provide service members with quality, affordable housing and lodging. Our vision is to be the best within the Department of Defense. We will provide quality lodging to our customers that is cost effective using business practices that are emulated by industry. We will provide customer service that is second to none. "Thank you for making us your lodging of choice."

Thursday 9. Sep 2004

Welcome to Navy Bachelor Quarter's Reservations Website!

Please Login.
If Forgot your User Name or Password click "Login Help" for assistance.

If you are new to our site and have not previously registered, click User Registration to create a new account.

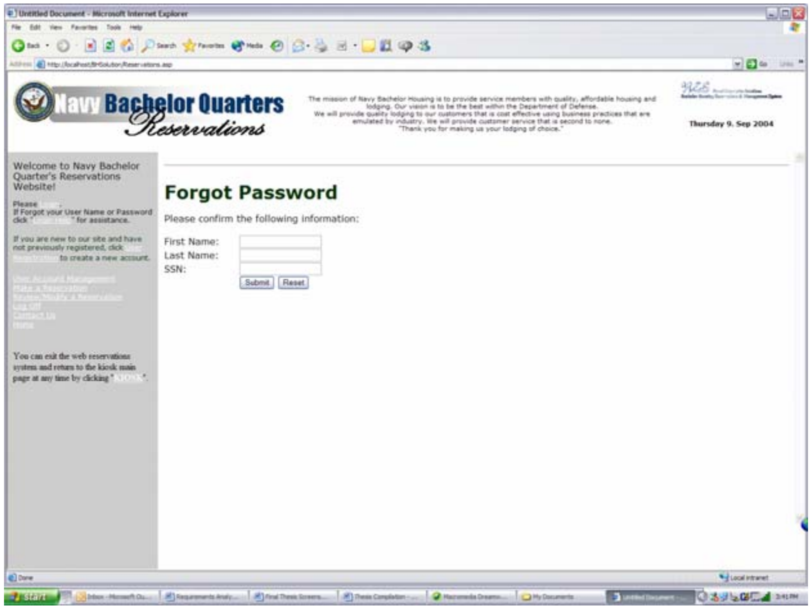
You can exit the web reservations system and return to the kiosk main page at any time by clicking "KIOSK".

Login

If you have previously registered your account please Log In.

Username
Password

Forgot your User Name or Password click "Login Help" for assistance.


Untitled Document - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost/BHSolution/Reservations.asp
Go Links
Navy Bachelor Quarters Reservations
Submit
Reset
User Account Management
Make a Reservation
Review/Modify a Reservation
Log Off
Contact Us
Home
Done
Local intranet
start
3:41 PM

The mission of Navy Bachelor Housing is to provide service members with quality, affordable housing and lodging. Our vision is to be the best within the Department of Defense. We will provide quality lodging to our customers that is cost effective using business practices that are emulated by industry. We will provide customer service that is second to none. "Thank you for making us your lodging of choice."

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Welcome to Navy Bachelor Quarter's Reservations Website!

Please Login.
If Forgot your User Name or Password click "Login Help" for assistance.

If you are new to our site and have not previously registered, click User Registration to create a new account.

You can exit the web reservations system and return to the kiosk main page at any time by clicking "KIOSK".

Forgot Password

Please confirm the following information:

First Name:
Last Name:
SSN:

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APPENDIX D. BACHELOR HOUSING KIOSK AND WEB RESERVATIONS SYSTEM CODING

Appendix D contains the actual system coding of the Bachelor Housing (BH) Solution prototype. It consists of the complete application coding (combination of ASP and JavaScript programming) for both the Kiosk and Web Reservations Systems pages. Provided for continued developer use or coding analysis.

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<title>BH Homepage</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
body {
	background-image: url(Images/test4.jpg);
}
body,td,th {
	color: #000000;
}
.style9 {
	color: #000000;
	font-weight: bold;
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-size: 18pt;
}
.style26 {
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-size: 18pt;
}
.style28 {font-weight: bold; color: #000000;}
.style29 {
	font-family: Verdana, Arial, Helvetica, sans-serif;
	color: #000000;
	font-weight: bold;
}
.style30 {color: #000000}
-->
</style>
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_reloadPage(init) {  //reloads the window if Nav4 resized
  if (init==true) with (navigator) {if ((appName=="Netscape")&&(parseInt(appVersion)==4)) {
    document.MM_pgW=innerWidth; document.MM_pgH=innerHeight; onresize=MM_reloadPage; }}
  else if (innerWidth!=document.MM_pgW || innerHeight!=document.MM_pgH) location.reload();
}
MM_reloadPage(true);
//-->
</script>
</head>

<body>
<div align="center">
  <p class="style9">&nbsp;</p>
  <p class="style9">&nbsp;</p>
  <p class="style9"><br>
    <span class="style28">     </span><span class="style29">Welcome to the KIOSK System for NW Region Bachelor Housing!<br>
  What would you like to do? <br>
  <br>
```

```
        </span>
        <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="Check-In Button" width="354" height="71" id="Check-In Button" tabindex="1" title="Check-In
Button">
         <param name="BGCOLOR" value="">
         <param name="movie" value="checkin.swf">
         <param name="quality" value="high">
         <embed src="checkin.swf" width="354" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="Check-In Button" ></embed>
        </object>
        <br>
        <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="Check-Out Button" width="354" height="71" id="Check-Out Button" tabindex="2" title="Check-Out
Button">
         <param name="BGCOLOR" value="">
         <param name="movie" value="checkoutbtn.swf">
         <param name="quality" value="high">
         <embed src="checkoutbtn.swf" width="354" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="Check-Out Button" ></embed>
        </object>
        <br>
        <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="Reservations Button" width="354" height="71" id="Reservations Button" tabindex="3"
title="Reservations Button">
         <param name="movie" value="Reservationsbutton.swf">
         <param name="quality" value="high">
         <embed src="Reservationsbutton.swf" width="354" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="Reservations Button" ></embed>
        </object>
        <br>
        <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
width="354" height="71" tabindex="4" title="Help Desk Button">
         <param name="BGCOLOR" value="">
         <param name="movie" value="HelpDeskbutton.swf">
         <param name="quality" value="high">
         <embed src="HelpDeskbutton.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="354" height="71" ></embed>
        </object>
        <br>
        <br>
        <span class="style30">For Help or to speak with customer service, please pick up the phone
<br>
       to the upper right of this screen.</span></p>
      </div>
      <a href="index.asp">index</a>
      </body>
      </html>
```

```
<html>

<head>
<title>Kiosk Final Page Redirection to Home Page </title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"><style
type="text/css">
<!--
body {
        background-image: url(Images/test4.jpg);
}
.style9 {
        font-family: Verdana, Arial, Helvetica, sans-serif;
        font-weight: bold;
}
-->
</style><noscript>
<meta http-equiv="refresh" content="5; URL=index.asp">
</noscript>
<script language="JavaScript">
<!--

var sTargetURL = "index.asp";

function doRedirect()
{
   setTimeout( "timedRedirect()", 5*1000 );
}

//  There are two definitions of 'timedRedirect', this
//  one adds to the visitors page history.
function timedRedirect()
{
   window.location.href = sTargetURL;
}

//-->
</script>

<script language="JavaScript1.1">
<!--

function timedRedirect()
{
   window.location.replace( sTargetURL );
}

//-->
</script>

</head>

<body onload="doRedirect()">

<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
```

```
<p align="center"><br>
Loading <a href="index.asp">Kiosk Main Screen</a></p>
<p align="center">In approx. 5 seconds the Kiosk Main Screen page should load.<br>
If it does not please select the link above.<br>
<br>
<img src="Images/BachHousing.jpg" width="294" height="281"><br>
<br>
<span class="style9"><font size="6">Thank you for choosing the Northwest Region!<br>
Enjoy Your Stay!!!! </font></span></p>

</body>

</html>

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<title>Transaction Complete</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
.style2 {font-size: 36px}
.style5 {
        color: #FFFF00;
        font-weight: bold;
}
.style11 {
        font-size: 14px;
        color: #CC0000;
}
.style13 {font-family: Verdana, Arial, Helvetica, sans-serif}
.style14 {font-size: 36px; font-family: Verdana, Arial, Helvetica, sans-serif; }
body {
        background-image: url(Images/test4.jpg);
}
.style19 {
        font-family: Verdana, Arial, Helvetica, sans-serif;
        font-size: 12pt;
        font-weight: bold;
        color: #FF0000;
}
.style20 {
        font-size: 24pt;
        font-weight: bold;
}
.style21 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 18pt; }
-->
</style>
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_reloadPage(init) {  //reloads the window if Nav4 resized
  if (init==true) with (navigator) {if ((appName=="Netscape")&&(parseInt(appVersion)==4)) {
    document.MM_pgW=innerWidth; document.MM_pgH=innerHeight; onresize=MM_reloadPage;
}}
  else if (innerWidth!=document.MM_pgW || innerHeight!=document.MM_pgH) location.reload();
}
MM_reloadPage(true);
//-->
</script>
</head>

<body>
<p>&nbsp;</p>
<p>&nbsp;</p>
<div align="center">
  <p class="style14">&nbsp;</p>
  <p class="style14"><span class="style20">Check-In</span></p>
  <table width="80%"  border="0" cellspacing="0" cellpadding="0">
    <tr>
      <td><div align="center" class="style21">
        <p>Your transaction has been successfully cancelled. </p>
        <p>Please click  on the continue button below to terminate the Kiosk Check-Out process.
</p>
      </div></td>
    </tr>
  </table>
  <br>
  <table width="36%"  border="0" cellspacing="0" cellpadding="0">
    <tr>
      <td><div align="center">
        <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
width="354" height="71" title="Continue Button">
            <param name="movie" value="Continuebutton.swf">
            <param name="quality" value="high">
            <param name="bgcolor" value="#FFFFFF">
            <embed src="Continuebutton.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="354" height="71" bgcolor="#FFFFFF"></embed>
        </object>
      </div></td>
    </tr>
  </table>
  <span class="style13"><br>
  </span><br>
  <br>
  <blockquote><blockquote>
    <blockquote><blockquote><blockquote><blockquote><blockquote><blockquote>
      <blockquote class="style19">
        <div align="left"> </div>
      </blockquote>
                </blockquote>
              </blockquote>
            </blockquote>
          </blockquote>
        </blockquote>
      </blockquote>
    </blockquote>
  </blockquote>
  <p class="style5 style11">
  <span class="style13">  </span> </p>
```

```
          <p class="style2 style5"><font
size="6">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nb
sp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nb
sp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
          </font><font size="6">  </font></p>
        </div>
        </body>
        </html>

        <html>

        <head>
        <title>Kiosk Final Page Redirection to Home Page </title>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"><style
type="text/css">
        <!--
        body {
                background-image: url(Images/test4.jpg);
        }
        .style9 {
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-weight: bold;
        }
        -->
        </style><noscript>
        <meta http-equiv="refresh" content="5; URL=index.asp">
        </noscript>
        <script language="JavaScript">
        <!--

        var sTargetURL = "index.asp";

        function doRedirect()
        {
           setTimeout( "timedRedirect()", 5*1000 );
        }

        //  There are two definitions of 'timedRedirect', this
        //  one adds to the visitors page history.
        function timedRedirect()
        {
           window.location.href = sTargetURL;
        }

        //-->
        </script>

        <script language="JavaScript1.1">
        <!--

        function timedRedirect()
        {
           window.location.replace( sTargetURL );
        }

        //-->
```

```
</script>

</head>

<body onload="doRedirect()">

<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p align="center"><br>
Loading <a href="index.asp">Kiosk Main Screen</a></p>
<p align="center">In approx. 5 seconds the Kiosk Main Screen page should load.<br>
If it does not please select the link above.<br>
<br>
<img src="Images/BachHousing.jpg" width="294" height="281"></p>
<table width="80%"  border="0" align="center" cellpadding="0" cellspacing="0">
  <tr>
    <td><div align="center">
      <p align="center"><span class="style9"><font size="6">Thank you for choosing the Northwest Region for your lodging needs.</font></span></p>
      <p align="center"><span class="style9"><font size="6"> We hope to see you again soon!!!! </font></span></p>
    </div></td>
  </tr>
</table>
<p align="center">  <br>
  </p>
</body>

</html>

<%@LANGUAGE="VBSCRIPT"%>
<!--#include file="Connections/BACHELORHOUSING.asp" -->
<%
Dim rsReservation__MMColParam
rsReservation__MMColParam = "1"
If (Request.QueryString("Reservation_ID") <> "") Then
  rsReservation__MMColParam = Request.QueryString("Reservation_ID")
End If
%>
<%
Dim rsReservation
Dim rsReservation_numRows

Set rsReservation = Server.CreateObject("ADODB.Recordset")
rsReservation.ActiveConnection = MM_BACHELORHOUSING_STRING
rsReservation.Source = "SELECT *  FROM Reservation  WHERE Reservation_ID = " + Replace(rsReservation__MMColParam, "'", "''") + ""
rsReservation.CursorType = 0
rsReservation.CursorLocation = 2
rsReservation.LockType = 1
rsReservation.Open()

rsReservation_numRows = 0
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
```

```
        "http://www.w3.org/TR/html4/loose.dtd">
        <html>
        <head>
        <title>BH Homepage</title>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
        <style type="text/css">
        <!--
        body {
                background-color: #FFFFFF;
                background-image: url(Images/test4.jpg);
        }
        .style6 {font-size: 36px; font-family: Verdana, Arial, Helvetica, sans-serif; }
        .style7 {font-size: 24pt}
        .style15 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 12pt; }
        .style16 {font-size: 12pt}
        .style9 {color: #000000;
                font-weight: bold;
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 18pt;
        }
        .style17 {font-family: Verdana, Arial, Helvetica, sans-serif}
        .style18 {
                font-size: 18pt;
                font-weight: bold;
        }
        -->
        </style>
        </head>

        <body>
        <div align="center">
         <p>&nbsp;</p>
         <h1 align="left" class="style6"> <br>
          <br>
         <span class="style7">Your Reservation information: <span class="style18"><%=
Request.QueryString("Reservation_ID") %></span> </span>    </h1>
         <form action="KIOSK_Check_out_page.asp" method="post"
name="ReservationInformationform" id="ReservationInformationform">
          <table width="70%"  border="0" cellspacing="0" cellpadding="0">
           <tr>
            <td width="58%"><div align="right"><span class="style17">Reservation Confirmation
Number: </span></div></td>
            <td width="23%"><input name="ConfirmationNumber" type="text" id="ConfirmationNumber"
tabindex="1" value="<%=(rsReservation.Fields.Item("Reservation_ID").Value)%>" size="50"></td>
            <td width="19%"><span class="style17"></span></td>
           </tr>
           <tr>
            <td><div align="right"><span class="style17">Customer Identification Number:
</span></div></td>
            <td><input name="CustomerID" type="text" id="CustomerID" tabindex="2"
value="<%=(rsReservation.Fields.Item("Customer ID").Value)%>" size="50"></td>
            <td><span class="style17"></span></td>
           </tr>
           <tr>
            <td><div align="right"><span class="style17">Rank:</span></div></td>
```

```
              <td><input name="Rank" type="text" id="Rank" tabindex="3"
value="<%=(rsReservation.Fields.Item("Rank").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">First Name: </span></div></td>
              <td><input name="FirstName" type="text" id="FirstName" tabindex="4"
value="<%=(rsReservation.Fields.Item("First Name").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Middle Initial: </span></div></td>
              <td><input name="MiddleInitial" type="text" id="MiddleInitial" tabindex="5"
value="<%=(rsReservation.Fields.Item("Middle Initial").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Last Name: </span></div></td>
              <td><input name="LastName" type="text" id="LastName" tabindex="6"
value="<%=(rsReservation.Fields.Item("Last Name").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Location:</span></div></td>
              <td><input name="Location" type="text" id="Location" tabindex="7"
value="<%=(rsReservation.Fields.Item("Location").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Room Type: </span></div></td>
              <td><input name="RoomType" type="text" id="RoomType" tabindex="8"
value="<%=(rsReservation.Fields.Item("Type").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">From Date: </span></div></td>
              <td><input name="FromDate" type="text" id="FromDate" tabindex="9"
value="<%=(rsReservation.Fields.Item("From Date").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">To Date: </span></div></td>
              <td><input name="ToDate" type="text" id="ToDate" tabindex="10"
value="<%=(rsReservation.Fields.Item("To Date").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td>&nbsp;</td>
              <td><input name="Continue" type="submit" id="Continue" value="Continue"></td>
              <td>&nbsp;</td>
            </tr>
            <tr>
              <td colspan="3"><span class="style15">Please verify the reservation information provided
above for accurarcy. If your reservation information is correct please click the &quot;Continue&quot;
button to proceed with the Check-In process. If your information is incorrect please contact the Help Desk
for assistance. </span></td>
```

```
       </tr>
      </table>
     </form>
     <table width="28%"  border="0" align="center" cellpadding="0" cellspacing="0">
      <tr>
       <td width="46%" height="61"><div align="center"> <span class="style16"><span
class="style9">
        <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="HelpDesk" width="354" height="71" id="HelpDesk" tabindex="1" title="Help Desk Button">
         <param name="BGCOLOR" value="">
         <param name="movie" value="HelpDeskbutton.swf">
         <param name="quality" value="high">
         <embed src="HelpDeskbutton.swf" width="354" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="HelpDesk" ></embed>
        </object>
       </span></span></div></td>
      </tr>
      <tr>
       <td><div align="center"><span class="style16"><span class="style9">
       </span></span></div></td>
      </tr>
     </table>
     <h1 align="left" class="style6">&nbsp;</h1>
    </div>
    </body>
    </html>
    <%
    rsReservation.Close()
    Set rsReservation = Nothing
    %>

    <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
    "http://www.w3.org/TR/html4/loose.dtd">
    <html>
    <head>
    <title>BH Homepage</title>
    <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
    <style type="text/css">
    <!--
    .style2 {font-size: 36px}
    .style5 {
            color: #FFFF00;
            font-weight: bold;
    }
    .style10 {font-size: 18px}
    .style11 {
            font-size: 14px;
            color: #CC0000;
    }
    .style13 {font-family: Verdana, Arial, Helvetica, sans-serif}
    .style14 {font-size: 36px; font-family: Verdana, Arial, Helvetica, sans-serif; }
    body {
            background-image: url(Images/test4.jpg);
    }
```

```
        .style19 {
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 12pt;
                font-weight: bold;
                color: #FF0000;
        }
        .style20 {
                font-size: 24pt;
                font-weight: bold;
        }
        .style21 {font-size: 14pt}
        -->
        </style>
        <script language="JavaScript" type="text/JavaScript">
        <!--
        function MM_reloadPage(init) {  //reloads the window if Nav4 resized
          if (init==true) with (navigator) {if ((appName=="Netscape")&&(parseInt(appVersion)==4)) {
            document.MM_pgW=innerWidth; document.MM_pgH=innerHeight; onresize=MM_reloadPage;
}}
          else if (innerWidth!=document.MM_pgW || innerHeight!=document.MM_pgH) location.reload();
        }
        MM_reloadPage(true);
        //-->
        </script>
        </head>

        <body>
        <p>&nbsp;</p>
        <p>&nbsp;</p>
        <div align="center"><br>
          <p class="style14"><span class="style20">Check-Out</span></p>
          <table width="900" height="227" border="0">
            <tr>
              <td width="478" align="left" valign="top" class="style13"><p align="center"
class="style21">History of Stay</p>
                <p align="left" class="style21"> 1.&nbsp; Bldg #:&nbsp; <u>2764</u></p>
                <p align="left" class="style21">  2. Room #: <u>&nbsp;14</u></p>
                <p align="left" class="style21"> 3. Phone #:&nbsp; (777)123-
6567&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&
nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp; </p>
                <p align="left" class="style21">  4. Date Checked in: 7 Feb 2004</p>
                <p align="left" class="style21">  5. Date Checked out: 12 Feb 2004</p></td>
              <td width="10" class="style13">&nbsp;</td>
              <td width="404" align="left" valign="top" class="style13"><p align="center"
class="style10">Billing Summary</p>
                <p align="left" class="style2"> <span class="style21">1. Room Rate: $12.50 per
day&nbsp;&nbsp; Total: $50.00</span></p>
                <p align="left" class="style21">  2. Telephone Service; $.25 per call&nbsp; Total:&nbsp;
$2.00</p>
                <p align="left" class="style2"> <span class="style21">3. Total:
$52.99&nbsp;&nbsp;&nbsp;</span></p></td>
            </tr>
          </table>
          <br>
          <span class="style13">If your billing information is correct, clicking the &quot;Process&quot;
button below will finalize your billing statement and the total amount indicated above will be biiled to your
```

```
Government Travel Credit Card on record. If you wish to pay by any other means, please press the
&quot;Cancel&quot; Button below and proceed to the Front Desk for assistance.
        <br>
        </span><br>
        <table width="59%"  border="0" cellspacing="0" cellpadding="0">
          <tr>
            <td width="47%" height="80"><span class="style2"><font size="4">
            <font size="4">
            <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="Process Transaction Button" width="324" height="71" id="Process Transaction Button"
tabindex="1" title="Process Transaction Button">
              <param name="BGCOLOR" value="#FFFFFF">
              <param name="movie" value="ProcessTransactionbut~2.swf">
              <param name="quality" value="high">
              <embed src="ProcessTransactionbut~2.swf" width="324" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="Process Transaction Button" bgcolor="#FFFFFF"
></embed>
            </object>
            </font> </font></span></td>
            <td width="7%">&nbsp;</td>
            <td width="46%"><div align="center"><span class="style2"><font size="4">
            <font size="4">
            <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="Cancel Transaction Button" width="324" height="71" id="Cancel Transaction Button" tabindex="2"
title="Cancel Transaction Button">
              <param name="BGCOLOR" value="#FFFFFF">
              <param name="movie" value="CancelTransactionbutton.swf">
              <param name="quality" value="high">
              <embed src="CancelTransactionbutton.swf" width="324" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="Cancel Transaction Button" bgcolor="#FFFFFF"
></embed>
            </object>
            </font> </font></span></div></td>
          </tr>
        </table>
        <p class="style19">If you have questions pertaining to your billing summary, or if the information
provided above is incorrect, please cancel your transaction and proceed to the customer service
representative at the front desk for assistance. <br>
        Thank You.</p>
        <br>
        <blockquote><blockquote>
          <blockquote><blockquote><blockquote><blockquote><blockquote><blockquote>
            <blockquote class="style19">
              <div align="left"> </div>
            </blockquote>
                      </blockquote>
                    </blockquote>
                  </blockquote>
                </blockquote>
              </blockquote>
            </blockquote>
          </blockquote>
```

```
      </blockquote>
      <p class="style5 style11">
      <span class="style13">  </span> </p>
      <p                                class="style2                                style5"><font
size="6">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nb
sp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nb
sp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
      </font><font size="6">  </font></p>
    </div>
    </body>
    </html>

    <%@LANGUAGE="VBSCRIPT"%>
    <!--#include file="Connections/BACHELORHOUSING.asp" -->
    <%
    Dim rsReservation__MMColParam
    rsReservation__MMColParam = "1"
    If (Request.QueryString("Reservation_ID") <> "") Then
      rsReservation__MMColParam = Request.QueryString("Reservation_ID")
    End If
    %>
    <%
    Dim rsReservation
    Dim rsReservation_numRows

    Set rsReservation = Server.CreateObject("ADODB.Recordset")
    rsReservation.ActiveConnection = MM_BACHELORHOUSING_STRING
    rsReservation.Source = "SELECT *  FROM Reservation  WHERE Reservation_ID = " +
Replace(rsReservation__MMColParam, "'", "''") + "'"
    rsReservation.CursorType = 0
    rsReservation.CursorLocation = 2
    rsReservation.LockType = 1
    rsReservation.Open()

    rsReservation_numRows = 0
    %>
    <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
    "http://www.w3.org/TR/html4/loose.dtd">
    <html>
    <head>
    <title>BH Homepage</title>
    <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
    <style type="text/css">
    <!--
    body {
            background-color: #FFFFFF;
            background-image: url(Images/test4.jpg);
    }
    .style2 {font-size: 36px}
    .style5 {
            color: #FF0000;
            font-weight: bold;
            font-family: Verdana, Arial, Helvetica, sans-serif;
    }
    .style6 {font-family: Verdana, Arial, Helvetica, sans-serif}
    .style7 {font-size: 36px; font-family: Verdana, Arial, Helvetica, sans-serif; }
```

```
.style8 {font-size: 12pt; font-family: Verdana, Arial, Helvetica, sans-serif; font-weight: bold; }
.style9 {
        font-size: 24pt;
        font-weight: bold;
}
.style10 {color: #000000;
        font-weight: bold;
        font-family: Verdana, Arial, Helvetica, sans-serif;
        font-size: 18pt;
}
.style14 {
        font-size: 14pt;
        color: #FF0000;
        font-weight: bold;
}
.style15 {
        font-size: 14pt;
        font-weight: bold;
}
-->
</style>
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_validateForm() { //v4.0
  var i,p,q,nm,test,num,min,max,errors='',args=MM_validateForm.arguments;
  for (i=0; i<(args.length-2); i+=3) { test=args[i+2]; val=MM_findObj(args[i]);
    if (val) { nm=val.name; if ((val=val.value)!="") {
      if (test.indexOf('isEmail')!=-1) { p=val.indexOf('@');
        if (p<1 || p==(val.length-1)) errors+='- '+nm+' must contain an e-mail address.\n';
      } else if (test!='R') { num = parseFloat(val);
        if (isNaN(val)) errors+='- '+nm+' must contain a number.\n';
        if (test.indexOf('inRange') != -1) { p=test.indexOf(':');
          min=test.substring(8,p); max=test.substring(p+1);
          if (num<min || max<num) errors+='- '+nm+' must contain a number between '+min+' and
'+max+'.\n';
    } } } else if (test.charAt(0) == 'R') errors += '- '+nm+' is required.\n'; }
  } if (errors) alert('The following error(s) occurred:\n'+errors);
  document.MM_returnValue = (errors == '');
}
//-->
</script>
</head>

<body>
<div align="center">
  <p>&nbsp;</p>
  <p class="style2 style6">&nbsp; </p>
  <p class="style2 style6"><br>
```

```
          <span class="style9">Check-Out</span></p>
         <h1 class="style2 style6"><span class="style8">Enter Customer Identification and Reservation
Confirmation Numbers Below: </span> </h1>
         <form action="KIOSK_Check_Out_InfoVerifpage.asp" method="get" name="CheckInForm"
class="style6" id="CheckInForm">
          <!--webbot bot="SaveResults" u-file="H:\IS-4220\BOQ Project\VQ\VQ\KIOSK set-
up\_private\form_results.csv" s-format="TEXT/CSV" s-label-fields="TRUE" -->
          <table width="50%"  border="0" cellspacing="0" cellpadding="0">
           <tr>
            <td>Reservation Confirmation Number: </td>
            <td><input name="Reservation_ID" type="text" id="Reservation_ID" tabindex="2"></td>
           </tr>
           <tr>
            <td>&nbsp;</td>
            <td><input name="Submit" type="submit" tabindex="1"
onClick="MM_validateForm('Reservation_ID','','R');return document.MM_returnValue"
value="Submit"></td>
           </tr>
          </table>
         </form>
         <p class="style7">   <span class="style14">I</span><span class="style14">f you are
experiencing system difficulties or need to speak with customer service representative please<span
class="style6"> click the &quot; Help Desk&quot; link below for assistance</span>.</span></p>
         <p class="style2 style5"><span class="style10">
          <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
width="354" height="71" tabindex="4" title="Help Desk Button">
           <param name="BGCOLOR" value="">
           <param name="movie" value="HelpDeskbutton.swf">
           <param name="quality" value="high">
           <embed src="HelpDeskbutton.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="354" height="71" ></embed>
          </object>
         </span></p>
        </div>
        </body>
        </html>
        <%
        rsReservation.Close()
        Set rsReservation = Nothing
        %>

        <html>

        <head>
        <title>Kiosk Final Page Redirection to Home Page </title>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"><style
type="text/css">
        <!--
        body {
                background-image: url(Images/test4.jpg);
        }
        .style9 {
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-weight: bold;
        }
        -->
        </style><noscript>
        <meta http-equiv="refresh" content="5; URL=index.asp">
        </noscript>
        <script language="JavaScript">
        <!--

        var sTargetURL = "index.asp";

        function doRedirect()
        {
          setTimeout( "timedRedirect()", 5*1000 );
        }

        //  There are two definitions of 'timedRedirect', this
        //  one adds to the visitors page history.
        function timedRedirect()
        {
          window.location.href = sTargetURL;
        }

        //-->
        </script>

        <script language="JavaScript1.1">
        <!--

        function timedRedirect()
        {
          window.location.replace( sTargetURL );
        }

        //-->
        </script>

        </head>

        <body onload="doRedirect()">

        <p>&nbsp;</p>
        <p>&nbsp;</p>
        <p>&nbsp;</p>
        <p align="center">Loading <a href="index.asp">Kiosk Main Screen</a></p>
        <p align="center">In approx. 5 seconds the Kiosk Main Screen page should load.<br>
        If it does not please select the link above.<br>
        <br>
        <img src="Images/BachHousing.jpg" width="294" height="281"><br>
        <br>
        <span class="style9"><font size="6">Thank you for choosing the Northwest Region!<br>
        Enjoy Your Stay!!!! </font></span></p>

        </body>

        </html>
```

```
<%@LANGUAGE="VBSCRIPT"%>
<!--#include file="Connections/BACHELORHOUSING.asp" -->
<%
Dim rsReservation__MMColParam
rsReservation__MMColParam = "1"
If (Request.QueryString("Reservation_ID") <> "") Then
  rsReservation__MMColParam = Request.QueryString("Reservation_ID")
End If
%>
<%
Dim rsReservation
Dim rsReservation_numRows

Set rsReservation = Server.CreateObject("ADODB.Recordset")
rsReservation.ActiveConnection = MM_BACHELORHOUSING_STRING
rsReservation.Source = "SELECT *  FROM Reservation  WHERE Reservation_ID = " +
Replace(rsReservation__MMColParam, "'", "''") + "  "
rsReservation.CursorType = 0
rsReservation.CursorLocation = 2
rsReservation.LockType = 1
rsReservation.Open()

rsReservation_numRows = 0
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<script language="JavaScript1.2">
<!--

/***********************************************
* Auto Maximize Window Script- © Dynamic Drive (www.dynamicdrive.com)
* This notice must stay intact for use
* Visit http://www.dynamicdrive.com/ for this script and 100's more.
***********************************************/

top.window.moveTo(0,0);
if (document.all) {
top.window.resizeTo(screen.availWidth,screen.availHeight);
}
else if (document.layers||document.getElementById) {
if (top.window.outerHeight<screen.availHeight||top.window.outerWidth<screen.availWidth){
top.window.outerHeight = screen.availHeight;
top.window.outerWidth = screen.availWidth;
}
}
//-->
</script>
<title>BH Homepage</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
body {
	background-color: #FFFFFF;
	background-image: url(Images/test4.jpg);
}
.style2 {
	font-size: 36px;
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style5 {
	color: #FF0000;
	font-weight: bold;
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-size: 14pt;
}
.style6 {font-family: Verdana, Arial, Helvetica, sans-serif}
.style8 {font-size: 12pt; font-family: Verdana, Arial, Helvetica, sans-serif; font-weight: bold; }
.style9 {font-size: 24pt}
.style10 {color: #000000;
	font-weight: bold;
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-size: 18pt;
}
-->
</style>
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_validateForm() { //v4.0
  var i,p,q,nm,test,num,min,max,errors='',args=MM_validateForm.arguments;
  for (i=0; i<(args.length-2); i+=3) { test=args[i+2]; val=MM_findObj(args[i]);
    if (val) { nm=val.name; if ((val=val.value)!="") {
      if (test.indexOf('isEmail')!=-1) { p=val.indexOf('@');
        if (p<1 || p==(val.length-1)) errors+='- '+nm+' must contain an e-mail address.\n';
      } else if (test!='R') { num = parseFloat(val);
        if (isNaN(val)) errors+='- '+nm+' must contain a number.\n';
        if (test.indexOf('inRange') != -1) { p=test.indexOf(':');
          min=test.substring(8,p); max=test.substring(p+1);
          if (num<min || max<num) errors+='- '+nm+' must contain a number between '+min+' and
'+max+'.\n';
    } } } else if (test.charAt(0) == 'R') errors += '- '+nm+' is required.\n'; }
  } if (errors) alert('The following error(s) occurred:\n'+errors);
  document.MM_returnValue = (errors == '');
}
//-->
</script>
</head>

<body>
<div align="center">
  <p>&nbsp;</p>
  <h1 class="style2 style6">&nbsp; </h1>
  <h1 class="style2 style6"><br>
```

```
          <span class="style9">Check-In</span></h1>
         <p class="style8"> Enter Customer Identification and Reservation Confirmation Numbers Below:
</p>
         <form action="KIOSK_InfoVerifpage3.asp" method="get" name="CheckInForm" class="style6"
id="CheckInForm">
          <!--webbot bot="SaveResults" u-file="H:\IS-4220\BOQ Project\VQ\VQ\KIOSK set-
up\_private\form_results.csv" s-format="TEXT/CSV" s-label-fields="TRUE" -->
          <table width="50%"  border="0" cellspacing="0" cellpadding="0">
           <tr>
            <td>Reservation Confirmation Number: </td>
            <td><input name="Reservation_ID" type="text" id="Reservation_ID" tabindex="2"></td>
           </tr>
           <tr>
            <td>&nbsp;</td>
            <td><input name="Submit" type="submit" tabindex="1"
onClick="MM_validateForm('Confirmation Number','','R');return document.MM_returnValue"
value="Submit"></td>
           </tr>
          </table>
         </form>
         <p class="style5">
         If you are experiencing system difficulties or need to speak with customer service representative
please<span class="style6"> click the &quot; Help Desk&quot; link below for assistance</span>.</p>
         <p class="style2 style5"><span class="style10">
          <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
width="354" height="71" tabindex="4" title="Help Desk Button">
           <param name="BGCOLOR" value="">
           <param name="movie" value="HelpDeskbutton.swf">
           <param name="quality" value="high">
           <embed src="HelpDeskbutton.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="354" height="71" ></embed>
          </object>
         </span><br>
          <br>
         </p>
        </div>
        </body>
        </html>
        <%
        rsReservation.Close()
        Set rsReservation = Nothing
        %>

        <%@LANGUAGE="VBSCRIPT"%>
        <!--#include file="Connections/BACHELORHOUSING.asp" -->
        <%
        Dim rsReservation__MMColParam
        rsReservation__MMColParam = "1"
        If (Request.QueryString("Reservation_ID") <> "") Then
         rsReservation__MMColParam = Request.QueryString("Reservation_ID")
        End If
        %>
        <%
        Dim rsReservation
        Dim rsReservation_numRows

        Set rsReservation = Server.CreateObject("ADODB.Recordset")
        rsReservation.ActiveConnection = MM_BACHELORHOUSING_STRING
        rsReservation.Source = "SELECT *  FROM Reservation  WHERE Reservation_ID = " +
Replace(rsReservation__MMColParam, "'", "''") + "'"
        rsReservation.CursorType = 0
        rsReservation.CursorLocation = 2
        rsReservation.LockType = 1
        rsReservation.Open()

        rsReservation_numRows = 0
        %>
        <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
        <html>
        <head>
        <title>BH Homepage</title>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
        <style type="text/css">
        <!--
        body {
                background-color: #FFFFFF;
                background-image: url(Images/test4.jpg);
        }
        .style6 {font-size: 36px; font-family: Verdana, Arial, Helvetica, sans-serif; }
        .style7 {font-size: 24pt}
        .style15 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 12pt; }
        .style16 {font-size: 12pt}
        .style9 {color: #000000;
                font-weight: bold;
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 18pt;
        }
        .style17 {font-family: Verdana, Arial, Helvetica, sans-serif}
        .style18 {
                font-size: 18pt;
                font-weight: bold;
        }
        -->
        </style>
        </head>

        <body>
        <div align="center">
          <p>&nbsp;</p>
          <h1 align="left" class="style6"> <br>
            <br>
          <span class="style7">Your Reservation information: <span class="style18"><%=
Request.QueryString("Reservation_ID") %></span> </span>   </h1>
          <form action="KIOSK_TermsofAgree4.asp" method="post" name="ReservationInformationform"
id="ReservationInformationform">
            <table width="70%"  border="0" cellspacing="0" cellpadding="0">
              <tr>
                <td width="58%"><div align="right"><span class="style17">Reservation Confirmation
Number: </span></div></td>
```

```
              <td width="23%"><input name="ConfirmationNumber" type="text" id="ConfirmationNumber"
tabindex="1" value="<%=(rsReservation.Fields.Item("Reservation_ID").Value)%>" size="50"></td>
              <td width="19%"><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Customer Identification Number:
</span></div></td>
              <td><input name="CustomerID" type="text" id="CustomerID" tabindex="2"
value="<%=(rsReservation.Fields.Item("Customer ID").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Rank:</span></div></td>
              <td><input name="Rank" type="text" id="Rank" tabindex="3"
value="<%=(rsReservation.Fields.Item("Rank").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">First Name: </span></div></td>
              <td><input name="FirstName" type="text" id="FirstName" tabindex="4"
value="<%=(rsReservation.Fields.Item("First Name").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Middle Initial: </span></div></td>
              <td><input name="MiddleInitial" type="text" id="MiddleInitial" tabindex="5"
value="<%=(rsReservation.Fields.Item("Middle Initial").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Last Name: </span></div></td>
              <td><input name="LastName" type="text" id="LastName" tabindex="6"
value="<%=(rsReservation.Fields.Item("Last Name").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Location:</span></div></td>
              <td><input name="Location" type="text" id="Location" tabindex="7"
value="<%=(rsReservation.Fields.Item("Location").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">Room Type: </span></div></td>
              <td><input name="RoomType" type="text" id="RoomType" tabindex="8"
value="<%=(rsReservation.Fields.Item("Type").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">From Date: </span></div></td>
              <td><input name="FromDate" type="text" id="FromDate" tabindex="9"
value="<%=(rsReservation.Fields.Item("From Date").Value)%>" size="50"></td>
              <td><span class="style17"></span></td>
            </tr>
            <tr>
              <td><div align="right"><span class="style17">To Date: </span></div></td>
            <td><input name="ToDate" type="text" id="ToDate" tabindex="10"
value="<%=(rsReservation.Fields.Item("To Date").Value)%>" size="50"></td>
            <td><span class="style17"></span></td>
           </tr>
           <tr>
            <td>&nbsp;</td>
            <td><input name="Continue" type="submit" id="Continue" value="Continue"></td>
            <td>&nbsp;</td>
           </tr>
           <tr>
            <td colspan="3"><span class="style15">Please verify the reservation information provided
above for accurarcy. If your reservation information is correct please click the &quot;Continue&quot;
button to proceed with the Check-In process. If your information is incorrect please contact the Help Desk
for assistance. </span></td>
           </tr>
          </table>
         </form>
         <table width="28%"  border="0" align="center" cellpadding="0" cellspacing="0">
          <tr>
           <td width="46%" height="61"><div align="center">        <span class="style16"><span
class="style9">
            <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="HelpDesk" width="354" height="71" id="HelpDesk" tabindex="1" title="Help Desk Button">
             <param name="BGCOLOR" value="">
             <param name="movie" value="HelpDeskbutton.swf">
             <param name="quality" value="high">
             <embed src="HelpDeskbutton.swf" width="354" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="HelpDesk" ></embed>
            </object>
           </span></span></div></td>
          </tr>
          <tr>
           <td><div align="center"><span class="style16"><span class="style9">
           </span></span></div></td>
          </tr>
         </table>
         <h1 align="left" class="style6">&nbsp;</h1>
        </div>
        </body>
        </html>
        <%
        rsReservation.Close()
        Set rsReservation = Nothing
        %>

        <%@LANGUAGE="VBSCRIPT"%><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01
Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
        <html>
        <head>
        <title>BH Homepage</title>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
        <style type="text/css">
        <!--
        body {
                background-color: #FFFFFF;
                background-image: url(Images/test4.jpg);
        }
        .style7 {font-size: 36px; font-family: Verdana, Arial, Helvetica, sans-serif; }
        .style8 {font-family: Verdana, Arial, Helvetica, sans-serif}
        .style9 {
                color: #000000;
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 16px;
        }
        .style19 {      font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 12pt;
                font-weight: bold;
                color: #FF0000;
        }
        .style25 {font-size: 18pt}
        .style28 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 14pt; }
        .style29 {font-size: 14pt}
        .style30 {
                color: #0000CC;
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 14pt;
                font-weight: bold;
        }
        -->
        </style>
        <script language="JavaScript" type="text/JavaScript">
        <!--
        function MM_reloadPage(init) {  //reloads the window if Nav4 resized
          if (init==true) with (navigator) {if ((appName=="Netscape")&&(parseInt(appVersion)==4)) {
            document.MM_pgW=innerWidth; document.MM_pgH=innerHeight; onresize=MM_reloadPage;
}}
          else if (innerWidth!=document.MM_pgW || innerHeight!=document.MM_pgH) location.reload();
        }
        MM_reloadPage(true);
        //-->
        </script>
        </head>

        <body>
        <div align="center">
          <p>&nbsp;</p>
          <h1 class="style7"><br>
            <br>
          <u>Room Assignment</u></h1>
          <form name="form1" method="post" action="">
            <table width="90%"  border="0" cellspacing="0" cellpadding="0">
              <tr>
                <td colspan="2"><span class="style28">Your room assignment information is listed
below:<br>
                  <br>
                </span></td>
                <td width="36%" rowspan="14"><div align="center">
            <p class="style9"><span class="style19">If you have questions pertaining to your billing
summary (or if the information provided above is incorrect) please cancel your transaction and proceed to
the customer service representative at the front desk for assistance. Thank You.</span>&nbsp;</p>
            <p class="style9">
             <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
width="256" height="71" tabindex="2" title="Room Assignment Cancellation Button">
              <param name="BGCOLOR" value="">
              <param name="movie" value="button2.swf">
              <param name="quality" value="high">
              <embed src="button2.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="256" height="71" ></embed>
             </object>
             <br>
              </p>
           </div></td>
          </tr>
          <tr>
           <td width="25%"><div align="right" class="style28">Room Number: </div></td>
           <td width="39%"> <div align="left">
            <input name="textfield" type="text" value="000">
           </div></td>
          </tr>
          <tr>
           <td><div align="right" class="style28">Room Type: </div></td>
           <td><div align="left">
            <input name="textfield" type="text" value="Single/Double/Suite/VIP" size="50"
maxlength="75">
           </div></td>
          </tr>
          <tr>
           <td><div align="right" class="style28">Building Name: </div></td>
           <td><div align="left">
            <input name="textfield" type="text" value="Sields Hall" size="50">
           </div></td>
          </tr>
          <tr>
           <td><div align="right" class="style28">Building Number: </div></td>
           <td><div align="left">
            <input name="textfield" type="text" value="49102">
           </div></td>
          </tr>
          <tr>
           <td><div align="right" class="style28">From Date: </div></td>
           <td><div align="left">
            <input name="textfield" type="text" value="MM-DD-YYYY">
           </div></td>
          </tr>
          <tr>
           <td><div align="right" class="style28">To Date: </div></td>
           <td><div align="left">
            <input name="textfield" type="text" value="MM-DD-YYYY">
           </div></td>
          </tr>
          <tr>
           <td><div align="right" class="style28">Unit Price:</div></td>
           <td><div align="left">
            <input name="textfield" type="text" value="$24.00">
           </div></td>
          </tr>
          <tr>
           <td><div align="right" class="style28">Phone Number: </div></td>
           <td><div align="left"><span class="style28">
             <input name="textfield" type="text" value="(000) 000-0000 ext. 000" size="50">
           </span></div></td>
          </tr>
          <tr>
           <td><span class="style29"></span></td>
           <td><div align="left"><span class="style29"></span></div></td>
          </tr>
          <tr>
           <td colspan="2"><div align="center"><span class="style30"><br>
           Please retrieve a key card from the kiosk receptacle to the right and place the  key in the
encoder slot below to active your room access. </span></div></td>
          </tr>
          <tr>
           <td>&nbsp;</td>
           <td>&nbsp;</td>
          </tr>
          <tr>
           <td colspan="2"><div align="right"><span class="style8"><span class="style8"><span
class="style25"><span class="style25"><span class="style29"><span
class="style29"></span></span></span></span></span></span></div>
            <div align="center"><span class="style8"><span class="style29">To continue processing
your room check-in please press the &quot;Print Map&quot; button below.</span></span></div></td>
          </tr>
          <tr>
           <td colspan="2"><div align="center"><span class="style8"><span class="style8"><span
class="style25"><span class="style25"><span class="style29"><span
class="style29"></span></span></span></span></span></span><span class="style8"><span
class="style25"><span class="style25"><span class="style29"><span
class="style29"></span></span></span></span></span><span class="style8"><span
class="style25"><span class="style25"><span class="style29"><span
class="style29"></span></span></span></span></span><span class="style8"><span class="style29">
             <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="Print Map Button" width="354" height="71" id="Print Map Button" tabindex="1" title="Print Map
Button">
              <param name="BGCOLOR" value="">
              <param name="movie" value="PrintMapbutton.swf">
              <param name="quality" value="high">
              <embed src="PrintMapbutton.swf" width="354" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="Print Map Button" ></embed>

             </object>
           </span></span></div></td>
          </tr>
        </table>
      <font size="4">&nbsp;</font></form>
      <div align="left"><blockquote class="style8">
```

```
          <blockquote>
            <div                                                                    align="center"><span
class="style9">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs
p;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;    </span> </div>
          </blockquote>
          </blockquote>
        </div>
        <blockquote class="style8"><blockquote>&nbsp;</blockquote>
        </blockquote>
      </div>
      </body>
      </html>
      <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
      "http://www.w3.org/TR/html4/loose.dtd">
      <html>
      <head>
      <script language="JavaScript1.2">
      <!--

      /***********************************************
      * Auto Maximize Window Script- © Dynamic Drive (www.dynamicdrive.com)
      * This notice must stay intact for use
      * Visit http://www.dynamicdrive.com/ for this script and 100's more.
      ***********************************************/

      top.window.moveTo(0,0);
      if (document.all) {
      top.window.resizeTo(screen.availWidth,screen.availHeight);
      }
      else if (document.layers||document.getElementById) {
      if (top.window.outerHeight<screen.availHeight||top.window.outerWidth<screen.availWidth){
      top.window.outerHeight = screen.availHeight;
      top.window.outerWidth = screen.availWidth;
      }
      }
      //-->
      </script>
      <title>BH Homepage</title>
      <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
      <style type="text/css">
      <!--
      body {
              background-color: #666666;
      }
      .style2 {font-size: 36px}
      .style6 {
              font-size: 36px;
              font-family: Verdana, Arial, Helvetica, sans-serif;
              color: #FFFFFF;
      }
      .style7 {font-family: Verdana, Arial, Helvetica, sans-serif}
      .style9 {font-family: Verdana, Arial, Helvetica, sans-serif; color: #FFFFFF; }
      -->
      </style>
      </head>
```

```
<body>
<div align="center">
  <p>&nbsp;</p>
  <h1 class="style6">
    <u>Terms of Agreement</u></h1>
  <table width="95%"  border="0" cellspacing="1" cellpadding="1">
    <tr>
      <td class="style9"><h1 align="left">GUEST INFORMATION </h1>
        <div align="left">
          <ul>
            <li><strong> SECURITY </strong></li>
          </ul>
        </div>          <p align="left"> ALL BUILDINGS ARE SECURED. All residents have color stickers attached to their I.D. card or room key. Only building residents will be allowed to enter that building. All others must be signed in as a guest.</p>
        <div align="left">
          <ul>
            <li><strong> GUESTS </strong></li>
          </ul>
        </div>         <p align="left"> Must be over 18, signed in at front desk, and escorted by the resident at all times. Visiting hours are until 2200 Sunday &ndash; Thursday and 0100 Friday and Saturday.</p>
        <div align="left">
          <ul>
            <li><strong> TELEPHONE </strong></li>
          </ul>
        </div>       <p align="left"> Long distance charges have a limit of $25.00. Your phone access will be shut off when the balance reaches $25.00. AT&amp;T rates are $0.30 per minute. There is no charge for local or 800 numbers. Use of a calling card is highly recommended. Personal computers may be connected, ask the front desk for instructions.</p>
        <div align="left">
          <ul>
            <li><strong> PARKING </strong></li>
          </ul>
        </div>        <p align="left"> Military base stickers are required. Please check with Pass and ID at the Missouri Gate (0700-1545). All military residents and personnel must park in the parking garage or in the adjacent Montgomery lot.</p>
        <div align="left">
          <ul>
            <li><strong> ALCOHOL (per OPNAV 11103.1b) </strong></li>
          </ul>
        </div>          <p align="left"> The possession and consumption of alcoholic beverages is permitted in Guest rooms. Consumption is <strong>prohibited</strong> on the 1 st floor and common areas of all buildings. Alcohol is permitted in the gazebo and BBQ grill areas, it is <strong>prohibited</strong> within 25 feet of any hot tub area. All alcoholic beverages in a room must be secured when the resident is not present. Beer and wine may be kept in the refrigerator if both occupants of the room are over 21 years of age. Unsecured alcohol is subject to confiscation.</p>
        <div align="left">
          <ul>
            <li><strong> SMOKING/SMOKE DETECTORS/BURNING </strong></li>
          </ul>
        </div>         <p align="left"> There is NO smoking in GuestRooms or buildings. Smoking is permitted ONLY in designated areas. There is NO burning of anything, candles, incense, or any other flammables in Guest rooms or buildings. No altering, disarming, disconnecting, or otherwise tampering with any smoke detector or fire extinguisher in Guest rooms or buildings.</p>
        <div align="left">
```

```
                  <ul>
                    <li><strong> ROOM KEYS &amp; VALUABLES </strong></li>
                  </ul>
                </div>        <p align="left">Each guest will be issued a room key. There is a $10.00 NON-
REFUNDABLE CHARGE for a new key. Room keys may not be given to anyone. All valuables must be
secured when you are not in the room. Housekeeping will not clean your room if valuables are left
unsecured.</p>
              <p align="left">I acknowledge that I have read and understand the above mentioned rules
and regulations. I understand the above mentioned rules and regulations are necessary for the safe and
reliable operation of Bachelor Housing. Furthermore, I understand that I have a duty to obey the above
mentioned rules and regulations. Failure to abide by these rules may result in eviction, and administrative
or disciplinary action.</p></td>
            </tr>
          </table>
          <div align="center"><br>
          <table width="61%"  border="0" cellspacing="0" cellpadding="0">
              <tr>
                <td width="43%"><object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
width="304" height="71" tabindex="1" title="I Agree Terms of Agreement Button">
                  <param name="movie" value="IAgreebutton.swf">
                  <param name="quality" value="high">
                  <param name="bgcolor" value="#666666">
                  <embed src="IAgreebutton.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="304" height="71" bgcolor="#666666"></embed>
                </object></td>
                <td width="8%">&nbsp;</td>
                <td width="49%"><object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
name="I Disagree Button" width="304" height="71" id="I Disagree Button" tabindex="2" title="Negative
Acknowledgement of "Terms of Agreement" Button">
                  <param name="BGCOLOR" value="#666666">
                  <param name="movie" value="IDisagreebutton.swf">
                  <param name="quality" value="high">
                  <embed src="IDisagreebutton.swf" width="304" height="71" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" name="I Disagree Button" bgcolor="#666666" ></embed>
                </object></td>
              </tr>
            </table>
          </div>
          <p class="style2" align="left"> <span class="style7"><font
size="4">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nb
sp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;<font size="4">
          </font>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
          <font size="4"> </font></font></span><font size="4"><font size="4"> </font></font><font
size="4"><font size="4"></font></font></p>
        </div>
        </body>
        </html>

        <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
        <html>
        <head>
```

```
<title>Transaction Complete</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
.style2 {font-size: 36px}
.style5 {
        color: #FFFF00;
        font-weight: bold;
}
.style11 {
        font-size: 14px;
        color: #CC0000;
}
.style13 {font-family: Verdana, Arial, Helvetica, sans-serif}
.style14 {font-size: 36px; font-family: Verdana, Arial, Helvetica, sans-serif; }
body {
        background-image: url(Images/test4.jpg);
}
.style19 {
        font-family: Verdana, Arial, Helvetica, sans-serif;
        font-size: 12pt;
        font-weight: bold;
        color: #FF0000;
}
.style20 {
        font-size: 24pt;
        font-weight: bold;
}
.style21 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 18pt; }
-->
</style>
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_reloadPage(init) {  //reloads the window if Nav4 resized
  if (init==true) with (navigator) {if ((appName=="Netscape")&&(parseInt(appVersion)==4)) {
    document.MM_pgW=innerWidth; document.MM_pgH=innerHeight; onresize=MM_reloadPage;
}}
  else if (innerWidth!=document.MM_pgW || innerHeight!=document.MM_pgH) location.reload();
}
MM_reloadPage(true);
//-->
</script>
</head>

<body>
<p>&nbsp;</p>
<p>&nbsp;</p>
<div align="center">
  <p class="style14">&nbsp;</p>
  <p class="style14"><span class="style20">Check-Out</span></p>
  <table width="80%"  border="0" cellspacing="0" cellpadding="0">
    <tr>
      <td><div align="center" class="style21">
        <p>Your transaction has been successfully cancelled. </p>
        <p>Please click  on the continue button below to terminate the Kiosk Check-Out process.
</p>
```

```
      </div></td>
    </tr>
  </table>
  <br>
  <table width="36%"  border="0" cellspacing="0" cellpadding="0">
    <tr>
      <td><div align="center">
        <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000" codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0" width="354" height="71" title="Continue Button">
            <param name="movie" value="Continuebutton.swf">
            <param name="quality" value="high">
            <param name="bgcolor" value="#FFFFFF">
            <embed src="Continuebutton.swf" quality="high" pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=ShockwaveFlash" type="application/x-shockwave-flash" width="354" height="71" bgcolor="#FFFFFF"></embed>
        </object>
      </div></td>
    </tr>
  </table>
  <span class="style13"><br>
  </span><br>
  <br>
  <blockquote><blockquote>
    <blockquote><blockquote><blockquote><blockquote><blockquote><blockquote>
      <blockquote class="style19">
        <div align="left"> </div>
      </blockquote>
                </blockquote>
              </blockquote>
            </blockquote>
          </blockquote>
        </blockquote>
      </blockquote>
    </blockquote>
  </blockquote>
  <p class="style5 style11">
  <span class="style13">  </span> </p>
  <p class="style2 style5"><font size="6">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
  </font><font size="6">  </font></p>
</div>
</body>
</html>

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<title>Transaction Complete</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
.style2 {font-size: 36px}
```

```
        .style5 {
                color: #FFFF00;
                font-weight: bold;
        }
        .style11 {
                font-size: 14px;
                color: #CC0000;
        }
        .style13 {font-family: Verdana, Arial, Helvetica, sans-serif}
        .style14 {font-size: 36px; font-family: Verdana, Arial, Helvetica, sans-serif; }
        body {
                background-image: url(Images/test4.jpg);
        }
        .style19 {
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 12pt;
                font-weight: bold;
                color: #FF0000;
        }
        .style20 {
                font-size: 24pt;
                font-weight: bold;
        }
        .style21 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 18pt; }
        -->
        </style>
        <script language="JavaScript" type="text/JavaScript">
        <!--
        function MM_reloadPage(init) {  //reloads the window if Nav4 resized
          if (init==true) with (navigator) {if ((appName=="Netscape")&&(parseInt(appVersion)==4)) {
            document.MM_pgW=innerWidth; document.MM_pgH=innerHeight; onresize=MM_reloadPage;
}}
          else if (innerWidth!=document.MM_pgW || innerHeight!=document.MM_pgH) location.reload();
        }
        MM_reloadPage(true);
        //-->
        </script>
        </head>

        <body>
        <p>&nbsp;</p>
        <p>&nbsp;</p>
        <div align="center">
          <p class="style14">&nbsp;</p>
          <p class="style14"><span class="style20">Check-Out</span></p>
          <table width="80%"  border="0" cellspacing="0" cellpadding="0">
            <tr>
              <td><div align="center" class="style21">
                <p>Your transaction has been successfully completed. </p>
                <p>Your itemized billing statement is being printed out below. Once you have recieved your
transaction receipt please click on the continue button below to conclude your check-out process. </p>
              </div></td>
            </tr>
          </table>
          <br>
          <table width="36%"  border="0" cellspacing="0" cellpadding="0">
          <tr>
            <td><div align="center">
              <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
width="354" height="71" title="Continue Check Out Button">
                <param name="movie" value="Continue_Check_Out_bu~1.swf">
                <param name="quality" value="high">
                <param name="bgcolor" value="#FFFFFF">
                <embed src="Continue_Check_Out_bu~1.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="354" height="71" bgcolor="#FFFFFF"></embed>
              </object>
        </div></td>
          </tr>
        </table>
        <span class="style13"><br>
        </span><br>
        <br>
        <blockquote><blockquote>
          <blockquote><blockquote><blockquote><blockquote><blockquote><blockquote>
            <blockquote class="style19">
              <div align="left"> </div>
            </blockquote>
                  </blockquote>
                </blockquote>
              </blockquote>
            </blockquote>
          </blockquote>
        </blockquote>
      </blockquote>
    </blockquote>
        <p class="style5 style11">
        <span class="style13">  </span> </p>
        <p class="style2 style5"><font
size="6">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nb
sp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nb
sp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
        </font><font size="6">  </font></p>
      </div>
      </body>
      </html>

      <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
      "http://www.w3.org/TR/html4/loose.dtd">
      <html>
      <head>
      <title>BH Homepage</title>
      <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
      <style type="text/css">
      <!--
      body {
              background-color: #FFFFFF;
              background-image: url(Images/test4.jpg);
      }
      .style1 {
              font-family: Verdana, Arial, Helvetica, sans-serif;
```

```
                font-size: 16pt;
                font-weight: bold;
        }
        -->
        </style>
        </head>

        <body>
        <div align="center" style="width: 878; height: 885">
         <p>&nbsp;  </p>
         <p>&nbsp;</p>
         <p>&nbsp;</p>
         <table width="60%"  border="0" cellspacing="0" cellpadding="0">
          <tr>
           <td><div align="center"><span class="style1">Navy Region Northwest <br>
        Regional Help Desk</span>
            <p>
             <object classid="CLSID:22d6f312-b0f6-11d0-94ab-0080c74c7e95" width="640"
height="480" id="mediaplayer1" title="Help Desk Video">
              <param name="FileName" value="Gunther Promo.avi">
              <param name="AutoStart" value="True">
              <param name="ShowControls" value="False">
              <param name="ShowStatusBar" value="False">
              <param name="ShowDisplay" value="False">
              <param name="AutoRewind" value="True">
              <embed type="application/x-mplayer2"
pluginspage="http://www.microsoft.com/Windows/Downloads/Contents/MediaPlayer/"
src="Gunther%20Promo.avi" width="640" height="480" autostart="True" filename="Gunther Promo.avi"
showcontrols="False" showstatusbar="False" showdisplay="False" autorewind="True"></embed>
             </object>
             <br>
             </p>
           </div></td>
          </tr>
          <tr>
           <td><div align="center">
            <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=5,0,0,0"
width="354" height="71" title="Return to Kiosk Main Page">
             <param name="movie" value="button3.swf">
             <param name="quality" value="high">
             <param name="bgcolor" value="#FFCCCC">
             <embed src="button3.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="354" height="71" bgcolor="#FFCCCC"></embed>
            </object>
           </div></td>
          </tr>
         </table>
         <p>&nbsp;</p>
         <p>
          <br>
         </p>
        </div>
        </body>
        </html>
        <%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
        <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
        <html>
        <head>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
        <title>Login Successful</title>
        <style type="text/css">
        <!--
        .style1 {
                color: #003300;
                font-size: 24pt;
                font-family: Verdana, Arial, Helvetica, sans-serif;
        }
        .style2 {
                font-size: 16pt;
                font-family: Verdana, Arial, Helvetica, sans-serif;
        }
        .style3 {font-size: 12pt}
        -->
        </style>
        </head>

        <body>
         <hr>
         <h1 class="style1">Login Confirmation</h1>
         <p class="style2 style3">You have successfully logged in.</p>
        </body>
        </html>

        <%@LANGUAGE="VBSCRIPT"%>
        <!--#include file="Connections/BACHELORHOUSING.asp" -->
        <%
        ' *** Validate request to log in to this site.
        MM_LoginAction = Request.ServerVariables("URL")
        If Request.QueryString<>"" Then MM_LoginAction = MM_LoginAction + "?" +
Server.HTMLEncode(Request.QueryString)
        MM_valUsername=CStr(Request.Form("Username"))
        If MM_valUsername <> "" Then
          MM_fldUserAuthorization="userGroup"
          MM_redirectLoginSuccess="Login Successful.asp"
          MM_redirectLoginFailed="User_Login_Failed.asp"
          MM_flag="ADODB.Recordset"
          set MM_rsUser = Server.CreateObject(MM_flag)
          MM_rsUser.ActiveConnection = MM_BACHELORHOUSING_STRING
          MM_rsUser.Source = "SELECT Username, Password"
          If MM_fldUserAuthorization <> "" Then MM_rsUser.Source = MM_rsUser.Source & "," &
MM_fldUserAuthorization
          MM_rsUser.Source = MM_rsUser.Source & " FROM Customer WHERE Username='" &
Replace(MM_valUsername,"'","''") &"' AND Password='" & Replace(Request.Form("Password"),"'","''") &
"'"
          MM_rsUser.CursorType = 0
          MM_rsUser.CursorLocation = 2
          MM_rsUser.LockType = 3
          MM_rsUser.Open
```

```
  If Not MM_rsUser.EOF Or Not MM_rsUser.BOF Then
    ' username and password match - this is a valid user
    Session("MM_Username") = MM_valUsername
    If (MM_fldUserAuthorization <> "") Then
      Session("MM_UserAuthorization")                                                            =
CStr(MM_rsUser.Fields.Item(MM_fldUserAuthorization).Value)
    Else
      Session("MM_UserAuthorization") = ""
    End If
    if CStr(Request.QueryString("accessdenied")) <> "" And true Then
      MM_redirectLoginSuccess = Request.QueryString("accessdenied")
    End If
    MM_rsUser.Close
    Response.Redirect(MM_redirectLoginSuccess)
  End If
  MM_rsUser.Close
  Response.Redirect(MM_redirectLoginFailed)
End If
%>
<%
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<!-- TemplateBeginEditable name="doctitle" -->
<title>Login</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1">
<style type="text/css">
<!--
body,td,th {
        font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style4 {color: #003300}
.style22 {      font-size: 9pt;
        color: #FF0000;
        font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style37 {
        color: #000000;
        font-size: 12pt;
}
.style43 {font-size: 12pt}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}
```

```
function MM_validateForm() { //v4.0
  var i,p,q,nm,test,num,min,max,errors='',args=MM_validateForm.arguments;
  for (i=0; i<(args.length-2); i+=3) { test=args[i+2]; val=MM_findObj(args[i]);
    if (val) { nm=val.name; if ((val=val.value)!="") {
      if (test.indexOf('isEmail')!=-1) { p=val.indexOf('@');
        if (p<1 || p==(val.length-1)) errors+='- '+nm+' must contain an e-mail address.\n';
      } else if (test!='R') { num = parseFloat(val);
        if (isNaN(val)) errors+='- '+nm+' must contain a number.\n';
        if (test.indexOf('inRange') != -1) { p=test.indexOf(':');
          min=test.substring(8,p); max=test.substring(p+1);
          if (num<min || max<num) errors+='- '+nm+' must contain a number between '+min+' and
'+max+'.\n';
    } } } else if (test.charAt(0) == 'R') errors += '- '+nm+' is required.\n'; }
  } if (errors) alert('The following error(s) occurred:\n'+errors);
  document.MM_returnValue = (errors == '');
}
//-->
</script>
</head>

<body>
<hr>

<h1><span class="style4">Login</span></h1>
<form ACTION="<%=MM_LoginAction%>" method="POST" name="LoginForm"
target="Reservations_mainFrame" id="LoginForm">
  <table width="100%"  border="0" cellspacing="1" cellpadding="1">
    <tr>
      <td colspan="2"><span class="style43">If you have previously registered your account
please Log In. </span></td>
    </tr>
    <tr>
      <td width="13%"><span class="style9 style33 style43">
        <label>Username</label>
      </span></td>
      <td width="87%"><input name="Username" type="text" id="Username"
maxlength="10"></td>
    </tr>
    <tr>
      <td><span class="style9 style33 style43">
        <label>Password</label>
      </span></td>
      <td><input name="Password" type="password" id="Password" maxlength="10"></td>
    </tr>
    <tr>
      <td><span class="style43"></span></td>
      <td><input name="Login" type="submit" id="Login"
onClick="MM_validateForm('Username','','R','Password','','R');return document.MM_returnValue"
value="Login"></td>
    </tr>
  </table>
</form>
<table width="100%"  border="0" cellpadding="0" cellspacing="0">
  <tr>
```

```
        <td colspan="2"><span class="style22"><span class="style37">Forgot your User Name or
Password click &quot;<a href="User_Forgot_Password.asp" target="Reservations_mainFrame">Login
Help</a>&quot; for assistance.</span> </span></td>
       </tr>
       <tr>
        <td>&nbsp;</td>
        <td>&nbsp;</td>
       </tr>
      </table>
      <h1>&nbsp;</h1>
      <p>&nbsp;</p>
      </body>
      </html>

      <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
      "http://www.w3.org/TR/html4/loose.dtd">
      <html>
      <head>
      <!-- TemplateBeginEditable name="doctitle" -->
      <title>Log_Off_Notification</title>
      <!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1">
      <style type="text/css">
      <!--
      body,td,th {
            font-family: Verdana, Arial, Helvetica, sans-serif;
      }
      .style4 {color: #003300}
      .style10 {font-size: 24pt}
      .style11 {font-size: 12pt}
      -->
      </style>
      <!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
      </head>

      <body>
      <hr>
      <h1><span class="style4"><span class="style10">Log Off </span></span></h1>
      <p>    <span class="style11">Your account has been successfully Logged-Off.</span>
      </p>
      </body>
      </html>

      <html>

      <head>
      <title>Kiosk Final Page Redirection to Home Page </title>
      <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"><style
type="text/css">
      <!--
      body {
            background-image: url(Images/test4.jpg);
      }
      .style9 {
            font-family: Verdana, Arial, Helvetica, sans-serif;
            font-weight: bold;
      }
      -->
      </style><noscript>
      <meta http-equiv="refresh" content="5; URL=index.asp">
      </noscript>
      <script language="JavaScript">
      <!--

      var sTargetURL = "index.asp";

      function doRedirect()
      {
         setTimeout( "timedRedirect()", 5*1000 );
      }

      //  There are two definitions of 'timedRedirect', this
      //  one adds to the visitors page history.
      function timedRedirect()
      {
         window.location.href = sTargetURL;
      }

      //-->
      </script>

      <script language="JavaScript1.1">
      <!--

      function timedRedirect()
      {
         window.location.replace( sTargetURL );
      }

      //-->
      </script>

      </head>

      <body onload="doRedirect()">

      <p>&nbsp;</p>
      <p>&nbsp;</p>
      <p>&nbsp;</p>
      <p align="center">Loading <a href="index.asp">Kiosk Main Screen</a></p>
      <p align="center">In approx. 5 seconds the Kiosk Main Screen page should load.<br>
      If it does not please select the link above.<br>
      <br>
      <img src="Images/BachHousing.jpg" width="294" height="281"><br>
      <br>
      <span class="style9"><font size="6">Thank you for choosing the Northwest Region!<br>
      Enjoy Your Stay!!!! </font></span></p>

      </body>

      </html>
```

```
<%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
<!--#include file="Connections/BACHELORHOUSING.asp" -->
<%
Dim rsRooms
Dim rsRooms_numRows

Set rsRooms = Server.CreateObject("ADODB.Recordset")
rsRooms.ActiveConnection = MM_BACHELORHOUSING_STRING
rsRooms.Source = "SELECT * FROM Rooms"
rsRooms.CursorType = 0
rsRooms.CursorLocation = 2
rsRooms.LockType = 1
rsRooms.Open()

rsRooms_numRows = 0
%>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<script language="JavaScript" src="ts_picker.js" type="text/javascript">
//Script by Denis Gritcyuk: tspicker@yahoo.com
//Submitted to JavaScript Kit (http://javascriptkit.com)
//Visit http://javascriptkit.com for this script
</script>
<script language="JavaScript" src="ts_picker2.js" type="text/javascript">
//Script by Denis Gritcyuk: tspicker@yahoo.com
//Submitted to JavaScript Kit (http://javascriptkit.com)
//Visit http://javascriptkit.com for this script
</script>
<title>Index</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
<style type="text/css">
<!--
.style20 {	font-size: 9pt;
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style27 {	font-size: 10pt;
	font-weight: bold;
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style29 {font-size: 9pt; font-weight: bold; }
.style37 {font-family: Verdana, Arial, Helvetica, sans-serif}
.style41 {font-size: 14pt; font-weight: bold; font-family: Verdana, Arial, Helvetica, sans-serif; color: #003300; }
-->
</style>
</head>

<body>
<p><span class="style41">Search for Quarters by known location...</span></p>
<form action="Reservation_Results.asp" method="get" name="searchForm" id="searchForm">
  <table width="60%"  border="0" cellspacing="0" cellpadding="0">
    <tr>
      <td width="42%"><span class="style37">Visiting Quarter's</span></td>
```

```
         <td width="58%"><select name="QuartersLocation" id="select"
title="<%=(rsRooms.Fields.Item("Location").Value)%>">
          <option value="Naval Submarine Base Bangor">Naval Submarine Base Bangor</option>
          <option value="Naval Station Bremerton">Naval Station Bremerton</option>
          <option value="Naval Station Everett">Naval Station Everett</option>
          <option value="Naval Station Whidbey Island">Naval Air Station Whidbey Island</option>
         </select></td>
        </tr>
        <tr>
         <td><span class="style37">Room Type:</span></td>
         <td><select name="RoomType" id="RoomType"
title="<%=(rsRooms.Fields.Item("Type").Value)%>">
          <option value="Single">Single</option>
          <option value="Double">Double</option>
          <option value="Suite">Suite</option>
         </select></td>
        </tr>
        <tr>
         <td><span class="style37">From Date:</span></td>
         <td><input name="timestamp" type="text" id="timestamp" value="" maxlength="10" />
           <a href="javascript:show_calendar('document.searchForm.timestamp',
document.searchForm.timestamp.value);"><img src="cal.gif" width="16" height="16" border="0" alt="Click
Here to Pick up the timestamp" /></a> </td>
        </tr>
        <tr>
         <td><span class="style37">To Date:</span></td>
         <td><input name="timestamp2" type="text" id="timestamp2" value="" maxlength="10" />
           <a href="javascript:show_calendar('document.searchForm.timestamp2',
document.searchForm.timestamp2.value);"><img src="cal2.gif" width="16" height="16" border="0"
alt="Click Here to Pick up the timestamp" /></a> </td>
        </tr>
        <tr>
         <td><span class="style37"></span></td>
         <td><input type="submit" name="Submit" value="Submit" />
         <input type="reset" name="Submit2" value="Reset" /></td></tr>
       </table>
      </form>
      <p><span class="style41">Or use our Worldwide Locator...</span></p>
      <table width="90%"  border="0" cellspacing="0" cellpadding="0">
       <tr>
        <td width="31%" valign="top"><span class="style27">Region Showcase: Navy Region
Northwest </span><span class="style37"><br />
           <object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=6,0,29,0"
width="350" height="250">
            <param name="movie" value="Images/BH%20Demo.swf" />
            <param name="quality" value="high" />
            <embed src="Images/BH%20Demo.swf" quality="high"
pluginspage="http://www.macromedia.com/shockwave/download/index.cgi?P1_Prod_Version=Shockwav
eFlash" type="application/x-shockwave-flash" width="350" height="250"></embed>
           </object>
        </span></td>
        <td width="31%" colspan="7" rowspan="10" valign="top"><span class="style37">Worldwide
Locator: Please click on the map to locate Navy Quarters by geographical regions. </span><br />
          <img src="Images/worldview-new.gif" alt="Worlwide Locator" width="551" height="370"
align="left" /><br />
```

```
          </td>
        </tr>
        <tr>
          <td width="31%" valign="top" class="style20">To find out more about the Navy Region
Northwest's Quarters visit the sites below. </td>
        </tr>
        <tr>
          <td width="31%" valign="top" class="style29"><a
href="http://www.navylifepnw.com/navylife/SUBASE_Bangor.asp" class="style37">Naval Submarine
Base Bangor </a></td>
        </tr>
        <tr>
          <td width="31%" valign="top" class="style29"><a
href="http://www.navylifepnw.com/navylife/NS_Bremerton.asp" class="style37">Naval Station Bremerton
</a></td>
        </tr>
        <tr>
          <td width="31%" valign="top" class="style29"><a
href="http://www.navylifepnw.com/navylife/NS_Everett.asp" class="style37">Naval Station Everett
</a></td>
        </tr>
        <tr>
          <td valign="top" class="style29"><a
href="http://www.navylifepnw.com/navylife/NAS_Whidbey.asp" class="style37">Naval Air Station
Whidbey Island </a></td>
        </tr>
        <tr>
          <td valign="top">&nbsp;</td>
        </tr>
        <tr>
          <td valign="top">&nbsp;</td>
        </tr>
        <tr>
          <td valign="top">&nbsp;</td>
        </tr>
        <tr>
          <td valign="top">&nbsp;</td>
        </tr>
      </table>
      <p>&nbsp; </p>
      </body>
      </html>
      <%
      rsRooms.Close()
      Set rsRooms = Nothing
      %>
      <%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>

      <%
      %><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
      <html>
      <head>
      <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
      <title>Reservations_Results</title>
      <style type="text/css">
```

```
        <!--
        .style1 {font-size: 24pt}
        .style2 {
                color: #0000CC;
                font-weight: bold;
        }
        .style6 {
                color: #009900;
                font-weight: bold;
        }
        .style7 {
                font-family: Verdana, Arial, Helvetica, sans-serif;
                color: #003300;
                font-size: 24pt;
        }
        .style8 {
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 16pt;
        }
        .style10 {font-size: 14pt}
        -->
        </style>
        </head>
        <body>
        <hr>
        <h1 class="style1 style7">Reservation Results</h1>
        <form action="Submit_Reservation.asp" method="get" name="ReservationForm"
id="ReservationForm">
         <span class="style8 style10">A
         <span class="style2"><%= Request.QueryString("RoomType") %></span>  room is available at
<strong class="style2"><%= Request.QueryString("QuartersLocation") %></strong> for the dates <span
class="style2"><%= Request.QueryString("timestamp") %></span> to <span class="style2"><%=
Request.QueryString("timestamp2") %></span>. If you would like to make this reservation please or click
<a href="Submit_Reservation.asp" class="style6">
         <a href="Submit_Reservation.asp" class="style6">
         <input name="MakeReservation" type="submit" id="MakeReservation" value="Make
Reservation">
         </a></a>click &quot;<strong><a href="Reservation_Main.asp">SEARCH</a></strong>&quot; to
return to the main page to initiate a new search. </span>
        </form>
        <h1 class="style1 style7">&nbsp; </h1>
        <p class="style8 style10">&nbsp;</p>
        <p>&nbsp;</p>
        <p>&nbsp;</p>
        </body>
        </html>

        <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
        <html>
        <head>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
        <title>Reservations_footer</title>
        <style type="text/css">
        <!--
        body,td,th {
                font-family: Verdana, Arial, Helvetica, sans-serif;
        }
        -->
        </style></head>

        <body>
        </body>
        </html>


        <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
        <html>
        <head>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
        <title>Reservations_header</title>
        <style type="text/css">
        <!--
        .style3 {font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 9pt;
                font-weight: bold;
        }
        .style10 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 10pt; }
        .style12 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 8pt; }
        -->
        </style>
        </head>

        <body>
        <table width="100%"  border="0" align="center" cellpadding="0" cellspacing="0">
          <tr>
            <td colspan="3" rowspan="2"><img src="Images/BQ%20reservations%20Logo.jpg"
alt="Bachelor Housing Reservations Logo" width="501" height="117"></td>
            <td width="49%" rowspan="2"><div align="center"><span class="style12">The mission of
Navy Bachelor Housing is to provide service members with quality, affordable housing and lodging. Our
vision is to be the best within the Department of Defense.<br>
            We will provide quality lodging to our customers that is cost effective using business practices
that are emulated by industry. We will provide customer service that is second to none. <br>
        "Thank you for making us your lodging of choice."&nbsp; </span></div>
            <div align="center"></div></td>
            <td width="18%"><div align="center"><img src="images/NES%202.gif" width="182"
height="33" alt="NES"></div></td>
          </tr>
          <tr>
            <td height="75"><div align="center" class="style3">
                <script language="" type="text/javascript">
        var d=new Date()
        var weekday=new
Array("Sunday","Monday","Tuesday","Wednesday","Thursday","Friday","Saturday")
        var monthname=new
Array("Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec")
        document.write(weekday[d.getDay()] + " ")
        document.write(d.getDate() + ". ")
        document.write(monthname[d.getMonth()] + " ")
        document.write(d.getFullYear())
              </script>
```

```
    </div></td>
  </tr>
</table>
<div align="center"></div>
</body>
</html>

<%@LANGUAGE="VBSCRIPT"%>
<%
' *** Logout the current user.
MM_Logout = CStr(Request.ServerVariables("URL")) & "?MM_Logoutnow=1"
If (CStr(Request("MM_Logoutnow")) = "1") Then
  Session.Contents.Remove("MM_Username")
  Session.Contents.Remove("MM_UserAuthorization")
  MM_logoutRedirectPage = "Logoff_Notification.asp"
  ' redirect with URL parameters (remove the "MM_Logoutnow" query param).
  if (MM_logoutRedirectPage = "") Then MM_logoutRedirectPage =
CStr(Request.ServerVariables("URL"))
  If (InStr(1, UC_redirectPage, "?", vbTextCompare) = 0 And Request.QueryString <> "") Then
    MM_newQS = "?"
    For Each Item In Request.QueryString
      If (Item <> "MM_Logoutnow") Then
        If (Len(MM_newQS) > 1) Then MM_newQS = MM_newQS & "&"
        MM_newQS = MM_newQS & Item & "=" & Server.URLencode(Request.QueryString(Item))
      End If
    Next
    if (Len(MM_newQS) > 1) Then MM_logoutRedirectPage = MM_logoutRedirectPage &
MM_newQS
  End If
  Response.Redirect(MM_logoutRedirectPage)
End If
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>Reservations_Menu</title>
<style type="text/css">
<!--
body,td,th {
        color: #000000;
}
body {
        background-color: #CCCCCC;
}
.style22 {
        font-size: 9pt;
        color: #FF0000;
        font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style31 {
        font-size: 9pt;
        font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style33 {font-family: Verdana, Arial, Helvetica, sans-serif}
```

```
        .style20 {font-size: 9pt}
        .style23 {
                color: #003300;
                font-family: Verdana, Arial, Helvetica, sans-serif;
        }
        a:link {
                color: #FFFFFF;
        }
        a:visited {
                color: #FFFFFF;
        }
        a:hover {
                color: #00FF00;
        }
        a:active {
                color: #FFFFFF;
        }
        .style36 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 10pt; color: #FFFFFF; }
        .style37 {color: #000000}
        .style44 {font-family: Verdana, Arial, Helvetica, sans-serif; font-size: 10pt; }
        .style45 {
                color: #0000CC;
                font-weight: bold;
        }
        -->
        </style>
        </head>

        <body>
        <table width="100%"  border="0" cellspacing="0" cellpadding="0">
          <tr>
            <td colspan="2"><span class="style33">Welcome to Navy Bachelor Quarter's Reservations
Website! </span><span class="style33"></span></td>
          </tr>
          <tr>
            <td colspan="2" class="style31"><br>
            Please <a href="Login.asp" target="Reservations_mainFrame">Login</a>.</td>
          </tr>
          <tr>
            <td colspan="2"><span class="style22"><span class="style37">If Forgot your User Name or
Password click &quot;<a href="User_Forgot_Password.asp"  target="Reservations_mainFrame">Login
Help</a>&quot;  for assistance.</span> </span></td>
          </tr>
          <tr>
            <td width="35%">&nbsp;</td>
            <td width="65%">&nbsp;</td>
          </tr>
          <tr>
            <td colspan="2"><span class="style20"><span class="style23">If you are new to our site and
have not previously registered, click </span><span class="style23"> <span class="style36"><a
href="User_Registration.asp" target="Reservations_mainFrame">User Registration</a></span> to create
a new account.</span></span> </td>
          </tr>
          <tr>
            <td colspan="2">&nbsp;</td>
          </tr>
```

```
 <tr>
   <td colspan="2"><span class="style36"><a href="User_Account_Modification.asp" target="Reservations_mainFrame">User Account Management</a></span></td>
 </tr>
 <tr>
   <td colspan="2"><a href="Reservations.asp" target="_parent" class="style44">Make a Reservation </a></td>
 </tr>
 <tr>
   <td colspan="2"><a href="Review_Modify_Reservation.asp" target="Reservations_mainFrame" class="style44">Review/Modify a Reservation </a></td>
 </tr>
 <tr>
   <td colspan="2"><span class="style36"><a href="<%= MM_Logout %>" target="Reservations_mainFrame">Log Off</a> </span></td>
 </tr>
 <tr>
   <td colspan="2"><span class="style36"><a href="User_Contact_Us.asp" target="Reservations_mainFrame">Contact Us</a></span></td>
 </tr>
 <tr>
   <td colspan="2"><span class="style36"><a href="Reservation_Main.asp" target="Reservations_mainFrame">Home</a></span></td>
 </tr>
 <tr>
   <td colspan="2">&nbsp;</td>
 </tr>
 <tr>
   <td>&nbsp;</td>
   <td>&nbsp;</td>
 </tr>
 <tr>
   <td colspan="2"><span class="style8 style9 style7">You can exit the web reservations system and return to the kiosk main page at any time by clicking &quot;<a href="index.asp" target="_parent" class="style45">KIOSK</a>&quot;. </span></td>
 </tr>
 <tr>
   <td>&nbsp;</td>
   <td>&nbsp;</td>
 </tr>
</table>
<br>
</body>
</html>

<%@LANGUAGE="VBSCRIPT"%>
<%
Dim Repeat1__numRows
Dim Repeat1__index

Repeat1__numRows = 5
Repeat1__index = 0
rs_rooms_numRows = rs_rooms_numRows + Repeat1__numRows
%>
<%
Dim MM_paramName
```

```
        %>
        <%
        ' *** Go To Record and Move To Record: create strings for maintaining URL and Form
parameters

        Dim MM_keepNone
        Dim MM_keepURL
        Dim MM_keepForm
        Dim MM_keepBoth

        Dim MM_removeList
        Dim MM_item
        Dim MM_nextItem

        ' create the list of parameters which should not be maintained
        MM_removeList = "&index="
        If (MM_paramName <> "") Then
          MM_removeList = MM_removeList & "&" & MM_paramName & "="
        End If

        MM_keepURL=""
        MM_keepForm=""
        MM_keepBoth=""
        MM_keepNone=""

        ' add the URL parameters to the MM_keepURL string
        For Each MM_item In Request.QueryString
          MM_nextItem = "&" & MM_item & "="
          If (InStr(1,MM_removeList,MM_nextItem,1) = 0) Then
            MM_keepURL = MM_keepURL & MM_nextItem &
Server.URLencode(Request.QueryString(MM_item))
          End If
        Next

        ' add the Form variables to the MM_keepForm string
        For Each MM_item In Request.Form
          MM_nextItem = "&" & MM_item & "="
          If (InStr(1,MM_removeList,MM_nextItem,1) = 0) Then
            MM_keepForm = MM_keepForm & MM_nextItem &
Server.URLencode(Request.Form(MM_item))
          End If
        Next

        ' create the Form + URL string and remove the intial '&' from each of the strings
        MM_keepBoth = MM_keepURL & MM_keepForm
        If (MM_keepBoth <> "") Then
          MM_keepBoth = Right(MM_keepBoth, Len(MM_keepBoth) - 1)
        End If
        If (MM_keepURL <> "")  Then
          MM_keepURL  = Right(MM_keepURL, Len(MM_keepURL) - 1)
        End If
        If (MM_keepForm <> "") Then
          MM_keepForm = Right(MM_keepForm, Len(MM_keepForm) - 1)
        End If

        ' a utility function used for adding additional parameters to these strings
```

```
Function MM_joinChar(firstItem)
  If (firstItem <> "") Then
    MM_joinChar = "&"
  Else
    MM_joinChar = ""
  End If
End Function
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<!-- TemplateBeginEditable name="doctitle" -->
<title>Reservation Details</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
.style2 {font-size: 6pt;
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style3 {
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-size: 9pt;
	font-weight: bold;
}
body,td,th {
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style4 {color: #003300}
.style12 {font-size: 16px;
	font-weight: bold;
}
.style5 {color: #000066;
	font-weight: bold;
}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
</head>

<body>
<hr>
<h1>Reservation Details </h1>
<!-- TemplateBeginEditable name="EditRegion1" -->
<p class="style12"><strong><strong>The following room choices are available for you stay at XX.</strong></strong></p>
<table width="80%"  border="1" align="center" cellpadding="0" cellspacing="0">
  <tr>
    <td width="72%"><h5>Room ID#: </h5></td>
    <td width="72%"><h5>Visiting Quarters:</h5></td>
    <td width="72%"><h5>Type Room:</h5></td>
    <td width="72%"><h5>Price per Night: </h5></td>
  </tr>
  <tr>
    <td><h5>&nbsp;</h5></td>
  <td><h5>&nbsp;</h5></td>
  <td><h5>&nbsp;</h5></td>
  <td><h5>&nbsp;</h5></td>
 </tr>
</table>
<form name="makeresv" id="makeresv">
 <table align="center">
  <tr valign="baseline">
   <td nowrap align="right"><div align="left">
     <h5>ID:
       <input type="text" name="ID2" size="32">
     </h5>
   </div></td>
   <td nowrap align="right"><h5 align="left">Userid:
       <input type="text" name="userid" size="32">
   </h5></td>
  </tr>
  <tr valign="baseline">
   <td nowrap align="right"><div align="left">
     <h5>From:
       <input type="text" name="fromdt" size="32">
      To:
      <input type="text" name="todate" size="32">
     </h5>
   </div></td>
   <td nowrap align="right"><h5 align="left">&nbsp;</h5></td>
  </tr>
  <tr valign="baseline">
   <td nowrap align="right"><h5>&nbsp;</h5></td>
   <td nowrap align="right"><h5 align="left">&nbsp;</h5></td>
  </tr>
  <tr valign="baseline">
   <td nowrap align="right"><div align="left">
     <h5>Credit Card#:: </h5>
   </div></td>
   <td nowrap align="right"><h5 align="left">Exp Date </h5></td>
  </tr>
  <tr valign="baseline">
   <td nowrap align="right"><div align="left">
     <h5>
      <input type="text" name="cc_num" size="32">
     </h5>
   </div></td>
   <td nowrap align="right"><h5 align="left">
     <input type="text" name="exp_date" size="32">
   </h5></td>
  </tr>
  <tr valign="baseline">
   <td align="right" nowrap><div align="left">
     <h5>Cust_notes:
       <input type="text" name="cust_notes" size="32">
     </h5>
    </div>
     <div align="left"></div></td>
   <td align="right" nowrap><h5 align="left">
     <input name="submit" type="submit" value="Make Reservation">
     <input type="reset" name="Reset" value="Reset">
   </h5></td>
  </tr>
 </table>
 <p> </p>
</form>
<p><br>&quot;<span class="style5">Thank you for making us your lodging of choice."</span></p>
<!-- TemplateEndEditable -->
</body>
</html>

<%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>Review_Modify_Reservation</title>
<style type="text/css">
<!--
.style1 {
	font-size: 24pt;
	font-family: Verdana, Arial, Helvetica, sans-serif;
	color: #003300;
}
-->
</style>
</head>

<body>
 <hr>
 <h1 class="style1">Review/Modify Reservation
 </h1>
</body>
</html>

<%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>Submit_Reservation</title>
<style type="text/css">
<!--
.style1 {
	color: #003300;
	font-size: 24pt;
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style2 {color: #0000CC;
	font-weight: bold;
}
.style7 {
	font-family: Verdana, Arial, Helvetica, sans-serif;
```

```
                font-size: 14pt;
        }
        .style8 {font-weight: bold}
        -->
        </style>
        </head>

        <body>
        <hr>
        <h1><span class="style1">Reservation Confirmation </span></h1>
        <p class="style8 style9 style7">The reservation<strong class="style2"></strong> for your
requested location, room type and inclusive dates has been verified and accepted. </p>
        <p class="style8 style9 style7">You will recieve a reservation verification via E-mail (the  address
you provided in your registration process) with your reservation information and confirmation number.
</p>
        <p class="style8 style9 style7">If you need to make another reservation,  or if you have
concluded your reservations transactions please click &quot;<strong><a href="Reservations.asp"
target="_parent">HOME</a></strong>&quot; to return to the main page to continue or to logoff of the web
reservations system.<br>
        </p>
        <p class="style8 style9 style7">&nbsp; </p>
        <p class="style7">&nbsp;</p>
        <p class="style7">&nbsp; </p>
        </body>
        </html>

        <%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
        <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
        <html>
        <head>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
        <title>Successful_Account_Registration</title>
        <style type="text/css">
        <!--
        .style1 {
                font-family: Verdana, Arial, Helvetica, sans-serif;
                font-size: 12pt;
        }
        .style2 {
                font-family: Verdana, Arial, Helvetica, sans-serif;
                color: #003300;
                font-size: 24pt;
        }
        .style3 {font-size: 12pt}
        -->
        </style>
        </head>

        <body>
        <hr>
        <h1 class="style2">Successful Registration </h1>
        <p class="style1 style3">Congratulations! Your account registration was successful. You now
have authorization to make reservations for quarters through the Navy Bachelor Housing Reservations
System. </p>
```

```
        <p class="style1">Click <a href="Employee_Account_Management.asp">here</a> to return to
the main page. </p>
        </body>
        </html>

        <%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
        <!--#include file="Connections/BACHELORHOUSING.asp" -->
        <%
        Dim rsCustomer
        Dim rsCustomer_numRows

        Set rsCustomer = Server.CreateObject("ADODB.Recordset")
        rsCustomer.ActiveConnection = MM_BACHELORHOUSING_STRING
        rsCustomer.Source = "SELECT *  FROM Customer"
        rsCustomer.CursorType = 0
        rsCustomer.CursorLocation = 2
        rsCustomer.LockType = 1
        rsCustomer.Open()

        rsCustomer_numRows = 0
        %>
        <%
        Dim Recordset1__MMColParam
        Recordset1__MMColParam = "1"
        If (Request.QueryString("Customer_ID") <> "") Then
          Recordset1__MMColParam = Request.QueryString("Customer_ID")
        End If
        %>

        <%
        Dim Recordset1
        Dim Recordset1_numRows

        Set Recordset1 = Server.CreateObject("ADODB.Recordset")
        Recordset1.ActiveConnection = MM_BACHELORHOUSING_STRING
        Recordset1.Source = "SELECT *  FROM Customer WHERE Customer_ID = " +
Replace(Recordset1__MMColParam, "'", "''") + "'"
        Recordset1.CursorType = 0
        Recordset1.CursorLocation = 2
        Recordset1.LockType = 3
        Recordset1.Open()

        Recordset1_numRows = 0
        %>

        <%
        '  *** Recordset Stats, Move To Record, and Go To Record: declare stats variables

        Dim rsCustomer_total
        Dim rsCustomer_first
        Dim rsCustomer_last

        ' set the record count
        rsCustomer_total = rsCustomer.RecordCount

        ' set the number of rows displayed on this page
```

```
If (rsCustomer_numRows < 0) Then
  rsCustomer_numRows = rsCustomer_total
Elseif (rsCustomer_numRows = 0) Then
  rsCustomer_numRows = 1
End If

' set the first and last displayed record
rsCustomer_first = 1
rsCustomer_last  = rsCustomer_first + rsCustomer_numRows - 1

' if we have the correct record count, check the other stats
If (rsCustomer_total <> -1) Then
  If (rsCustomer_first > rsCustomer_total) Then
    rsCustomer_first = rsCustomer_total
  End If
  If (rsCustomer_last > rsCustomer_total) Then
    rsCustomer_last = rsCustomer_total
  End If
  If (rsCustomer_numRows > rsCustomer_total) Then
    rsCustomer_numRows = rsCustomer_total
  End If
End If
%>
<%
' *** Recordset Stats: if we don't know the record count, manually count them

If (rsCustomer_total = -1) Then

  ' count the total records by iterating through the recordset
  rsCustomer_total=0
  While (Not rsCustomer.EOF)
    rsCustomer_total = rsCustomer_total + 1
    rsCustomer.MoveNext
  Wend

  ' reset the cursor to the beginning
  If (rsCustomer.CursorType > 0) Then
    rsCustomer.MoveFirst
  Else
    rsCustomer.Requery
  End If

  ' set the number of rows displayed on this page
  If (rsCustomer_numRows < 0 Or rsCustomer_numRows > rsCustomer_total) Then
    rsCustomer_numRows = rsCustomer_total
  End If

  ' set the first and last displayed record
  rsCustomer_first = 1
  rsCustomer_last = rsCustomer_first + rsCustomer_numRows - 1

  If (rsCustomer_first > rsCustomer_total) Then
    rsCustomer_first = rsCustomer_total
  End If
  If (rsCustomer_last > rsCustomer_total) Then
    rsCustomer_last = rsCustomer_total
  End If

End If
%>
<%
Dim MM_paramName
%>
<%
' *** Move To Record and Go To Record: declare variables

Dim MM_rs
Dim MM_rsCount
Dim MM_size
Dim MM_uniqueCol
Dim MM_offset
Dim MM_atTotal
Dim MM_paramIsDefined

Dim MM_param
Dim MM_index

Set MM_rs    = rsCustomer
MM_rsCount   = rsCustomer_total
MM_size      = rsCustomer_numRows
MM_uniqueCol = ""
MM_paramName = ""
MM_offset = 0
MM_atTotal = false
MM_paramIsDefined = false
If (MM_paramName <> "") Then
  MM_paramIsDefined = (Request.QueryString(MM_paramName) <> "")
End If
%>
<%
' *** Move To Record: handle 'index' or 'offset' parameter

if (Not MM_paramIsDefined And MM_rsCount <> 0) then

  ' use index parameter if defined, otherwise use offset parameter
  MM_param = Request.QueryString("index")
  If (MM_param = "") Then
    MM_param = Request.QueryString("offset")
  End If
  If (MM_param <> "") Then
    MM_offset = Int(MM_param)
  End If

  ' if we have a record count, check if we are past the end of the recordset
  If (MM_rsCount <> -1) Then
    If (MM_offset >= MM_rsCount Or MM_offset = -1) Then  ' past end or move last
      If ((MM_rsCount Mod MM_size) > 0) Then         ' last page not a full repeat region
        MM_offset = MM_rsCount - (MM_rsCount Mod MM_size)
      Else
        MM_offset = MM_rsCount - MM_size
      End If
    End If
  End If

  ' move the cursor to the selected record
  MM_index = 0
  While ((Not MM_rs.EOF) And (MM_index < MM_offset Or MM_offset = -1))
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend
  If (MM_rs.EOF) Then
    MM_offset = MM_index  ' set MM_offset to the last possible record
  End If

End If
%>
<%
' *** Move To Record: if we dont know the record count, check the display range

If (MM_rsCount = -1) Then

  ' walk to the end of the display range for this page
  MM_index = MM_offset
  While (Not MM_rs.EOF And (MM_size < 0 Or MM_index < MM_offset + MM_size))
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend

  ' if we walked off the end of the recordset, set MM_rsCount and MM_size
  If (MM_rs.EOF) Then
    MM_rsCount = MM_index
    If (MM_size < 0 Or MM_size > MM_rsCount) Then
      MM_size = MM_rsCount
    End If
  End If

  ' if we walked off the end, set the offset based on page size
  If (MM_rs.EOF And Not MM_paramIsDefined) Then
    If (MM_offset > MM_rsCount - MM_size Or MM_offset = -1) Then
      If ((MM_rsCount Mod MM_size) > 0) Then
        MM_offset = MM_rsCount - (MM_rsCount Mod MM_size)
      Else
        MM_offset = MM_rsCount - MM_size
      End If
    End If
  End If

  ' reset the cursor to the beginning
  If (MM_rs.CursorType > 0) Then
    MM_rs.MoveFirst
  Else
    MM_rs.Requery
  End If

  ' move the cursor to the selected record
  MM_index = 0
  While (Not MM_rs.EOF And MM_index < MM_offset)
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend
End If
%>
<%
' *** Move To Record: update recordset stats

' set the first and last displayed record
rsCustomer_first = MM_offset + 1
rsCustomer_last  = MM_offset + MM_size

If (MM_rsCount <> -1) Then
  If (rsCustomer_first > MM_rsCount) Then
    rsCustomer_first = MM_rsCount
  End If
  If (rsCustomer_last > MM_rsCount) Then
    rsCustomer_last = MM_rsCount
  End If
End If

' set the boolean used by hide region to check if we are on the last record
MM_atTotal = (MM_rsCount <> -1 And MM_offset + MM_size >= MM_rsCount)
%>
<%
' *** Go To Record and Move To Record: create strings for maintaining URL and Form parameters

Dim MM_keepNone
Dim MM_keepURL
Dim MM_keepForm
Dim MM_keepBoth

Dim MM_removeList
Dim MM_item
Dim MM_nextItem

' create the list of parameters which should not be maintained
MM_removeList = "&index="
If (MM_paramName <> "") Then
  MM_removeList = MM_removeList & "&" & MM_paramName & "="
End If

MM_keepURL=""
MM_keepForm=""
MM_keepBoth=""
MM_keepNone=""

' add the URL parameters to the MM_keepURL string
For Each MM_item In Request.QueryString
  MM_nextItem = "&" & MM_item & "="
  If (InStr(1,MM_removeList,MM_nextItem,1) = 0) Then
    MM_keepURL = MM_keepURL & MM_nextItem & Server.URLencode(Request.QueryString(MM_item))
  End If
Next
```

```
' add the Form variables to the MM_keepForm string
For Each MM_item In Request.Form
  MM_nextItem = "&" & MM_item & "="
  If (InStr(1,MM_removeList,MM_nextItem,1) = 0) Then
    MM_keepForm = MM_keepForm & MM_nextItem & Server.URLencode(Request.Form(MM_item))
  End If
Next

' create the Form + URL string and remove the intial '&' from each of the strings
MM_keepBoth = MM_keepURL & MM_keepForm
If (MM_keepBoth <> "") Then
  MM_keepBoth = Right(MM_keepBoth, Len(MM_keepBoth) - 1)
End If
If (MM_keepURL <> "")  Then
  MM_keepURL  = Right(MM_keepURL, Len(MM_keepURL) - 1)
End If
If (MM_keepForm <> "") Then
  MM_keepForm = Right(MM_keepForm, Len(MM_keepForm) - 1)
End If

' a utility function used for adding additional parameters to these strings
Function MM_joinChar(firstItem)
  If (firstItem <> "") Then
    MM_joinChar = "&"
  Else
    MM_joinChar = ""
  End If
End Function
%>
<%
' *** Move To Record: set the strings for the first, last, next, and previous links

Dim MM_keepMove
Dim MM_moveParam
Dim MM_moveFirst
Dim MM_moveLast
Dim MM_moveNext
Dim MM_movePrev

Dim MM_urlStr
Dim MM_paramList
Dim MM_paramIndex
Dim MM_nextParam

MM_keepMove = MM_keepBoth
MM_moveParam = "index"

' if the page has a repeated region, remove 'offset' from the maintained parameters
If (MM_size > 1) Then
  MM_moveParam = "offset"
  If (MM_keepMove <> "") Then
    MM_paramList = Split(MM_keepMove, "&")
    MM_keepMove = ""
    For MM_paramIndex = 0 To UBound(MM_paramList)
```

```
   MM_nextParam = Left(MM_paramList(MM_paramIndex),
InStr(MM_paramList(MM_paramIndex),"=") - 1)
   If (StrComp(MM_nextParam,MM_moveParam,1) <> 0) Then
    MM_keepMove = MM_keepMove & "&" & MM_paramList(MM_paramIndex)
   End If
  Next
  If (MM_keepMove <> "") Then
   MM_keepMove = Right(MM_keepMove, Len(MM_keepMove) - 1)
  End If
 End If
End If

' set the strings for the move to links
If (MM_keepMove <> "") Then
 MM_keepMove = Server.HTMLEncode(MM_keepMove) & "&"
End If

MM_urlStr = Request.ServerVariables("URL") & "?" & MM_keepMove & MM_moveParam & "="

MM_moveFirst = MM_urlStr & "0"
MM_moveLast  = MM_urlStr & "-1"
MM_moveNext  = MM_urlStr & CStr(MM_offset + MM_size)
If (MM_offset - MM_size < 0) Then
 MM_movePrev = MM_urlStr & "0"
Else
 MM_movePrev = MM_urlStr & CStr(MM_offset - MM_size)
End If
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>User_Account_Details (Master)</title>
<style type="text/css">
<!--
.style5 {font-weight: bold; color: #003300;}
body,td,th {
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style6 {
	color: #000099;
	font-weight: bold;
}
.style7 {color: #000099}
body {
	background-color: #FFFFFF;
}
-->
</style>
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_reloadPage(init) {  //reloads the window if Nav4 resized
 if (init==true) with (navigator) {if ((appName=="Netscape")&&(parseInt(appVersion)==4)) {
  document.MM_pgW=innerWidth; document.MM_pgH=innerHeight; onresize=MM_reloadPage;
}}
```

```
          else if (innerWidth!=document.MM_pgW || innerHeight!=document.MM_pgH) location.reload();
        }
        MM_reloadPage(true);
        //-->
        </script>
        </head>

        <body>
        <div id="Layer1" style="position:absolute; left:523px; top:120px; width:422px; height:50px; z-
index:1">Click here to make changes to your user account: <a
href="User_Account_Update.asp">Account Update</a> </div>
        <hr>
        <h1><span class="style5">User Account Details </span></h1>
        <table border="0" align="left">
          <tr>
            <td align="left" width="50%">Customer_ID</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Customer_ID").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">First Name</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("First Name").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Middile Initial</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Middile Initial").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Last Name</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Last Name").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Gender</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Gender").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Rank</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Rank").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Paygrade</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Paygrade").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Branch of Service</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Branch of Service").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Command Name</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Command Name").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Command Address_Street</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Command
Address_Street").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Command Address_City</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Command
Address_City").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Command Address_State</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Command
Address_State").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Command Address_Zip</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Command
Address_Zip").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Command Address_Area Code</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Command Address_Area
Code").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Command Address_Duty Phone</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Command Address_Duty
Phone").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Home Address_Street</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Home
Address_Street").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Home Address_City</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Home
Address_City").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Home Address_State</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Home
Address_State").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Home Address_Zip</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Home
Address_Zip").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Home Phone_Area Code</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Home Phone_Area
Code").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Home Phone_Phone Number</td>
            <td align="left" width="50%"><%=(Recordset1.Fields.Item("Home Phone_Phone
Number").Value)%></td>
          </tr>
          <tr>
            <td align="left" width="50%">Country</td>
```

```
    <td align="left" width="50%"><%=(Recordset1.Fields.Item("Country").Value)%></td>
  </tr>
  <tr>
    <td align="left" width="50%">User Name</td>
    <td align="left" width="50%"><%=(Recordset1.Fields.Item("User Name").Value)%></td>
  </tr>
  <tr>
    <td align="left" width="50%">Password</td>
    <td align="left" width="50%"><%=(Recordset1.Fields.Item("Password").Value)%></td>
  </tr>
  <tr>
    <td align="left" width="50%">CTCC Number</td>
    <td align="left" width="50%"><%=(Recordset1.Fields.Item("CTCC Number").Value)%></td>
  </tr>
  <tr>
    <td align="left" width="50%">Email</td>
    <td align="left" width="50%"><%=(Recordset1.Fields.Item("Email").Value)%></td>
  </tr>
</table>
<p>&nbsp;</p>
<h1><span class="style5"><br>
</span></h1>
<p>&nbsp;</p>

    <p>&nbsp;</p>
</body>
</html>
<%
rsCustomer.Close()
Set rsCustomer = Nothing
%>
<%
Recordset1.Close()
Set Recordset1 = Nothing
%>

<%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
<!--#include file="Connections/BACHELORHOUSING.asp" -->
<%
Dim rsCustomer
Dim rsCustomer_numRows

Set rsCustomer = Server.CreateObject("ADODB.Recordset")
rsCustomer.ActiveConnection = MM_BACHELORHOUSING_STRING
rsCustomer.Source = "SELECT *  FROM Customer"
rsCustomer.CursorType = 0
rsCustomer.CursorLocation = 2
rsCustomer.LockType = 1
rsCustomer.Open()

rsCustomer_numRows = 0
%>
<%
Dim Repeat1__numRows
Dim Repeat1__index
```

```
Repeat1__numRows = 10
Repeat1__index = 0
rsCustomer_numRows = rsCustomer_numRows + Repeat1__numRows
%>
<%
'  *** Recordset Stats, Move To Record, and Go To Record: declare stats variables

Dim rsCustomer_total
Dim rsCustomer_first
Dim rsCustomer_last

' set the record count
rsCustomer_total = rsCustomer.RecordCount

' set the number of rows displayed on this page
If (rsCustomer_numRows < 0) Then
  rsCustomer_numRows = rsCustomer_total
Elseif (rsCustomer_numRows = 0) Then
  rsCustomer_numRows = 1
End If

' set the first and last displayed record
rsCustomer_first = 1
rsCustomer_last  = rsCustomer_first + rsCustomer_numRows - 1

' if we have the correct record count, check the other stats
If (rsCustomer_total <> -1) Then
  If (rsCustomer_first > rsCustomer_total) Then
    rsCustomer_first = rsCustomer_total
  End If
  If (rsCustomer_last > rsCustomer_total) Then
    rsCustomer_last = rsCustomer_total
  End If
  If (rsCustomer_numRows > rsCustomer_total) Then
    rsCustomer_numRows = rsCustomer_total
  End If
End If
%>
<%
' *** Recordset Stats: if we don't know the record count, manually count them

If (rsCustomer_total = -1) Then

  ' count the total records by iterating through the recordset
  rsCustomer_total=0
  While (Not rsCustomer.EOF)
    rsCustomer_total = rsCustomer_total + 1
    rsCustomer.MoveNext
  Wend

  ' reset the cursor to the beginning
  If (rsCustomer.CursorType > 0) Then
    rsCustomer.MoveFirst
  Else
    rsCustomer.Requery
  End If
  ' set the number of rows displayed on this page
  If (rsCustomer_numRows < 0 Or rsCustomer_numRows > rsCustomer_total) Then
    rsCustomer_numRows = rsCustomer_total
  End If

  ' set the first and last displayed record
  rsCustomer_first = 1
  rsCustomer_last = rsCustomer_first + rsCustomer_numRows - 1

  If (rsCustomer_first > rsCustomer_total) Then
    rsCustomer_first = rsCustomer_total
  End If
  If (rsCustomer_last > rsCustomer_total) Then
    rsCustomer_last = rsCustomer_total
  End If

End If
%>
<%
Dim MM_paramName
%>
<%
' *** Move To Record and Go To Record: declare variables

Dim MM_rs
Dim MM_rsCount
Dim MM_size
Dim MM_uniqueCol
Dim MM_offset
Dim MM_atTotal
Dim MM_paramIsDefined

Dim MM_param
Dim MM_index

Set MM_rs    = rsCustomer
MM_rsCount   = rsCustomer_total
MM_size      = rsCustomer_numRows
MM_uniqueCol = ""
MM_paramName = ""
MM_offset = 0
MM_atTotal = false
MM_paramIsDefined = false
If (MM_paramName <> "") Then
  MM_paramIsDefined = (Request.QueryString(MM_paramName) <> "")
End If
%>
<%
' *** Move To Record: handle 'index' or 'offset' parameter

if (Not MM_paramIsDefined And MM_rsCount <> 0) then

  ' use index parameter if defined, otherwise use offset parameter
  MM_param = Request.QueryString("index")
  If (MM_param = "") Then
```

```
    MM_param = Request.QueryString("offset")
  End If
  If (MM_param <> "") Then
    MM_offset = Int(MM_param)
  End If

  ' if we have a record count, check if we are past the end of the recordset
  If (MM_rsCount <> -1) Then
    If (MM_offset >= MM_rsCount Or MM_offset = -1) Then  ' past end or move last
      If ((MM_rsCount Mod MM_size) > 0) Then         ' last page not a full repeat region
        MM_offset = MM_rsCount - (MM_rsCount Mod MM_size)
      Else
        MM_offset = MM_rsCount - MM_size
      End If
    End If
  End If

  ' move the cursor to the selected record
  MM_index = 0
  While ((Not MM_rs.EOF) And (MM_index < MM_offset Or MM_offset = -1))
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend
  If (MM_rs.EOF) Then
    MM_offset = MM_index  ' set MM_offset to the last possible record
  End If

End If
%>
<%
' *** Move To Record: if we dont know the record count, check the display range

If (MM_rsCount = -1) Then

  ' walk to the end of the display range for this page
  MM_index = MM_offset
  While (Not MM_rs.EOF And (MM_size < 0 Or MM_index < MM_offset + MM_size))
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend

  ' if we walked off the end of the recordset, set MM_rsCount and MM_size
  If (MM_rs.EOF) Then
    MM_rsCount = MM_index
    If (MM_size < 0 Or MM_size > MM_rsCount) Then
      MM_size = MM_rsCount
    End If
  End If

  ' if we walked off the end, set the offset based on page size
  If (MM_rs.EOF And Not MM_paramIsDefined) Then
    If (MM_offset > MM_rsCount - MM_size Or MM_offset = -1) Then
      If ((MM_rsCount Mod MM_size) > 0) Then
        MM_offset = MM_rsCount - (MM_rsCount Mod MM_size)
      Else
        MM_offset = MM_rsCount - MM_size
      End If
    End If
  End If

  ' reset the cursor to the beginning
  If (MM_rs.CursorType > 0) Then
    MM_rs.MoveFirst
  Else
    MM_rs.Requery
  End If

  ' move the cursor to the selected record
  MM_index = 0
  While (Not MM_rs.EOF And MM_index < MM_offset)
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend
End If
%>
<%
' *** Move To Record: update recordset stats

' set the first and last displayed record
rsCustomer_first = MM_offset + 1
rsCustomer_last  = MM_offset + MM_size

If (MM_rsCount <> -1) Then
  If (rsCustomer_first > MM_rsCount) Then
    rsCustomer_first = MM_rsCount
  End If
  If (rsCustomer_last > MM_rsCount) Then
    rsCustomer_last = MM_rsCount
  End If
End If

' set the boolean used by hide region to check if we are on the last record
MM_atTotal = (MM_rsCount <> -1 And MM_offset + MM_size >= MM_rsCount)
%>
<%
' *** Go To Record and Move To Record: create strings for maintaining URL and Form parameters

Dim MM_keepNone
Dim MM_keepURL
Dim MM_keepForm
Dim MM_keepBoth

Dim MM_removeList
Dim MM_item
Dim MM_nextItem

' create the list of parameters which should not be maintained
MM_removeList = "&index="
If (MM_paramName <> "") Then
  MM_removeList = MM_removeList & "&" & MM_paramName & "="
End If
```

```
MM_keepURL=""
MM_keepForm=""
MM_keepBoth=""
MM_keepNone=""

' add the URL parameters to the MM_keepURL string
For Each MM_item In Request.QueryString
  MM_nextItem = "&" & MM_item & "="
  If (InStr(1,MM_removeList,MM_nextItem,1) = 0) Then
    MM_keepURL = MM_keepURL & MM_nextItem &
Server.URLencode(Request.QueryString(MM_item))
  End If
Next

' add the Form variables to the MM_keepForm string
For Each MM_item In Request.Form
  MM_nextItem = "&" & MM_item & "="
  If (InStr(1,MM_removeList,MM_nextItem,1) = 0) Then
    MM_keepForm = MM_keepForm & MM_nextItem &
Server.URLencode(Request.Form(MM_item))
  End If
Next

' create the Form + URL string and remove the intial '&' from each of the strings
MM_keepBoth = MM_keepURL & MM_keepForm
If (MM_keepBoth <> "") Then
  MM_keepBoth = Right(MM_keepBoth, Len(MM_keepBoth) - 1)
End If
If (MM_keepURL <> "")  Then
  MM_keepURL  = Right(MM_keepURL, Len(MM_keepURL) - 1)
End If
If (MM_keepForm <> "") Then
  MM_keepForm = Right(MM_keepForm, Len(MM_keepForm) - 1)
End If

' a utility function used for adding additional parameters to these strings
Function MM_joinChar(firstItem)
  If (firstItem <> "") Then
    MM_joinChar = "&"
  Else
    MM_joinChar = ""
  End If
End Function
%>
<%
' *** Move To Record: set the strings for the first, last, next, and previous links

Dim MM_keepMove
Dim MM_moveParam
Dim MM_moveFirst
Dim MM_moveLast
Dim MM_moveNext
Dim MM_movePrev

Dim MM_urlStr
Dim MM_paramList
Dim MM_paramIndex
Dim MM_nextParam

MM_keepMove = MM_keepBoth
MM_moveParam = "index"

' if the page has a repeated region, remove 'offset' from the maintained parameters
If (MM_size > 1) Then
  MM_moveParam = "offset"
  If (MM_keepMove <> "") Then
    MM_paramList = Split(MM_keepMove, "&")
    MM_keepMove = ""
    For MM_paramIndex = 0 To UBound(MM_paramList)
      MM_nextParam = Left(MM_paramList(MM_paramIndex),
InStr(MM_paramList(MM_paramIndex),"=") - 1)
      If (StrComp(MM_nextParam,MM_moveParam,1) <> 0) Then
        MM_keepMove = MM_keepMove & "&" & MM_paramList(MM_paramIndex)
      End If
    Next
    If (MM_keepMove <> "") Then
      MM_keepMove = Right(MM_keepMove, Len(MM_keepMove) - 1)
    End If
  End If
End If

' set the strings for the move to links
If (MM_keepMove <> "") Then
  MM_keepMove = Server.HTMLEncode(MM_keepMove) & "&"
End If

MM_urlStr = Request.ServerVariables("URL") & "?" & MM_keepMove & MM_moveParam & "="

MM_moveFirst = MM_urlStr & "0"
MM_moveLast  = MM_urlStr & "-1"
MM_moveNext  = MM_urlStr & CStr(MM_offset + MM_size)
If (MM_offset - MM_size < 0) Then
  MM_movePrev = MM_urlStr & "0"
Else
  MM_movePrev = MM_urlStr & CStr(MM_offset - MM_size)
End If
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>User_Account_Management</title>
</head>

<body>
<p>User Account Management</p>
<table align="center" border="1">
  <tr>
    <td align="left" width="3%"> Customer_ID </td>
    <td align="left" width="3%"> First Name </td>
```

```
        <td align="left" width="3%"> Middile Initial </td>
        <td align="left" width="3%"> Last Name </td>
        <td align="left" width="3%"> Gender </td>
        <td align="left" width="3%"> Rank </td>
        <td align="left" width="3%"> Paygrade </td>
        <td align="left" width="3%"> Branch of Service </td>
        <td align="left" width="3%"> Command Name </td>
        <td align="left" width="3%"> Command Address_Street </td>
        <td align="left" width="3%"> Command Address_City </td>
        <td align="left" width="3%"> Command Address_State </td>
        <td align="left" width="3%"> Command Address_Zip </td>
        <td align="left" width="3%"> Command Address_Area Code </td>
        <td align="left" width="3%"> Command Address_Duty Phone </td>
        <td align="left" width="3%"> Home Address_Street </td>
        <td align="left" width="3%"> Home Address_City </td>
        <td align="left" width="3%"> Home Address_State </td>
        <td align="left" width="3%"> Home Address_Zip </td>
        <td align="left" width="3%"> Home Phone_Area Code </td>
        <td align="left" width="3%"> Home Phone_Phone Number </td>
        <td align="left" width="3%"> Country </td>
        <td align="left" width="3%"> User Name </td>
        <td align="left" width="3%"> Password </td>
        <td align="left" width="3%"> CTCC Number </td>
        <td align="left" width="3%"> Email </td>
       </tr>
       <%
      While ((Repeat1__numRows <> 0) AND (NOT rsCustomer.EOF))
      %>
       <tr>
        <td align="left" width="3%"><a href="User_Account_Details.asp?<%=
Server.HTMLEncode(MM_keepBoth) & MM_joinChar(MM_keepBoth) & "Customer_ID=" &
rsCustomer.Fields.Item("Customer_ID").Value
%>"><%=(rsCustomer.Fields.Item("Customer_ID").Value)%></a> </td>

        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("First Name").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Middile Initial").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Last Name").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Gender").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Rank").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Paygrade").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Branch of Service").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Command Name").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Command
Address_Street").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Command Address_City").Value)%>
</td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Command
Address_State").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Command Address_Zip").Value)%>
</td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Command Address_Area
Code").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Command Address_Duty
Phone").Value)%> </td>
        <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Home Address_Street").Value)%>
</td>
```

```
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Home Address_City").Value)%>
</td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Home Address_State").Value)%>
</td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Home Address_Zip").Value)%>
</td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Home Phone_Area
Code").Value)%> </td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Home Phone_Phone
Number").Value)%> </td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Country").Value)%> </td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("User Name").Value)%> </td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Password").Value)%> </td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("CTCC Number").Value)%> </td>
    <td align="left" width="3%"><%=(rsCustomer.Fields.Item("Email").Value)%> </td>
  </tr>
  <%
  Repeat1__index=Repeat1__index+1
  Repeat1__numRows=Repeat1__numRows-1
  rsCustomer.MoveNext()
Wend
%>
</table>
<br>
<table border="0" width="50%" align="center">
  <tr>
    <td width="23%" align="center"><% If MM_offset <> 0 Then %>
        <a href="<%=MM_moveFirst%>">First</a>
        <% End If ' end MM_offset <> 0 %>
    </td>
    <td width="31%" align="center"><% If MM_offset <> 0 Then %>
        <a href="<%=MM_movePrev%>">Previous</a>
        <% End If ' end MM_offset <> 0 %>
    </td>
    <td width="23%" align="center"><% If Not MM_atTotal Then %>
        <a href="<%=MM_moveNext%>">Next</a>
        <% End If ' end Not MM_atTotal %>
    </td>
    <td width="23%" align="center"><% If Not MM_atTotal Then %>
        <a href="<%=MM_moveLast%>">Last</a>
        <% End If ' end Not MM_atTotal %>
    </td>
  </tr>
</table>
Records <%=(rsCustomer_first)%> to <%=(rsCustomer_last)%> of <%=(rsCustomer_total)%>
<p>&nbsp;</p>
</body>
</html>
<%
rsCustomer.Close()
Set rsCustomer = Nothing
%>


<%@LANGUAGE="VBSCRIPT"%>
<!--#include file="Connections/BACHELORHOUSING.asp" -->
```

```
<%
Dim rsCustomer__MMColParam
rsCustomer__MMColParam = "1"
If (Request.QueryString("Customer_ID") <> "") Then
  rsCustomer__MMColParam = Request.QueryString("Customer_ID")
End If
%>
<%
Dim rsCustomer
Dim rsCustomer_numRows

Set rsCustomer = Server.CreateObject("ADODB.Recordset")
rsCustomer.ActiveConnection = MM_BACHELORHOUSING_STRING
rsCustomer.Source = "SELECT * FROM Customer WHERE Customer_ID = " + Replace(rsCustomer__MMColParam, "'", "''") + ""
rsCustomer.CursorType = 0
rsCustomer.CursorLocation = 2
rsCustomer.LockType = 1
rsCustomer.Open()

rsCustomer_numRows = 0
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<!-- TemplateBeginEditable name="doctitle" -->
<title>Manage_Account_Modification</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
body,td,th {
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style5 {font-weight: bold; color: #003300;}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
</head>

<body>
<hr>
<h1><span class="style5">User Account Modification</span></h1>
<p>Use the form below to make changes to your user account. </p>
<form action="User_Account_Update_Results.asp" method="get" name="selectCustInfoForm" id="selectCustInfoForm">
  <table width="100%"  border="0" cellspacing="1" cellpadding="1">
    <tr>
      <td colspan="2">Please enter your Customer Identification Number in the space provided below and click the submit to retrieve your account information.</td>
    </tr>
    <tr>
      <td width="32%">Customer Identification Number </td>
      <td width="68%"><input name="Customer_ID" type="text" id="Customer_ID"></td>
    </tr>
    <tr>
      <td>&nbsp;</td>
      <td><input type="submit" name="Submit" value="Submit"></td>
    </tr>
  </table>
</form>
<p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
  <p>&nbsp;</p>
<p>&nbsp;</p>
<p>&nbsp;</p>
</body>
</html>
<%
rsCustomer.Close()
Set rsCustomer = Nothing
%>

<%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
<!--#include file="Connections/BACHELORHOUSING.asp" -->
<%
Dim rsCustomer__MMColParam
rsCustomer__MMColParam = "1"
If (Request.QueryString("Customer_ID") <> "") Then
  rsCustomer__MMColParam = Request.QueryString("Customer_ID")
End If
%>
<%
Dim rsCustomer
Dim rsCustomer_numRows

Set rsCustomer = Server.CreateObject("ADODB.Recordset")
rsCustomer.ActiveConnection = MM_BACHELORHOUSING_STRING
rsCustomer.Source = "SELECT * FROM Customer WHERE Customer_ID = '" +
Replace(rsCustomer__MMColParam, "'", "''") + "'"
rsCustomer.CursorType = 0
rsCustomer.CursorLocation = 2
rsCustomer.LockType = 1
rsCustomer.Open()

rsCustomer_numRows = 0
%>
<%
'  *** Recordset Stats, Move To Record, and Go To Record: declare stats variables

Dim rsCustomer_total
Dim rsCustomer_first
Dim rsCustomer_last

' set the record count
rsCustomer_total = rsCustomer.RecordCount

' set the number of rows displayed on this page
If (rsCustomer_numRows < 0) Then
  rsCustomer_numRows = rsCustomer_total
```

```
Elseif (rsCustomer_numRows = 0) Then
  rsCustomer_numRows = 1
End If

' set the first and last displayed record
rsCustomer_first = 1
rsCustomer_last  = rsCustomer_first + rsCustomer_numRows - 1

' if we have the correct record count, check the other stats
If (rsCustomer_total <> -1) Then
  If (rsCustomer_first > rsCustomer_total) Then
    rsCustomer_first = rsCustomer_total
  End If
  If (rsCustomer_last > rsCustomer_total) Then
    rsCustomer_last = rsCustomer_total
  End If
  If (rsCustomer_numRows > rsCustomer_total) Then
    rsCustomer_numRows = rsCustomer_total
  End If
End If
%>
<%
Dim MM_paramName
%>
<%
' *** Move To Record and Go To Record: declare variables

Dim MM_rs
Dim MM_rsCount
Dim MM_size
Dim MM_uniqueCol
Dim MM_offset
Dim MM_atTotal
Dim MM_paramIsDefined

Dim MM_param
Dim MM_index

Set MM_rs    = rsCustomer
MM_rsCount   = rsCustomer_total
MM_size      = rsCustomer_numRows
MM_uniqueCol = "Customer_ID"
MM_paramName = "QueryString.Customer_ID"
MM_offset = 0
MM_atTotal = false
MM_paramIsDefined = false
If (MM_paramName <> "") Then
  MM_paramIsDefined = (Request.QueryString(MM_paramName) <> "")
End If
%>
<%
' *** Move To Specific Record: handle detail parameter

If (MM_paramIsDefined And MM_rsCount <> 0) Then

  ' get the value of the parameter
  MM_param = Request.QueryString(MM_paramName)

  ' find the record with the unique column value equal to the parameter value
  MM_offset = 0
  Do While (Not MM_rs.EOF)
    If (CStr(MM_rs.Fields.Item(MM_uniqueCol).Value) = MM_param) Then
      Exit Do
    End If
    MM_offset = MM_offset + 1
    MM_rs.MoveNext
  Loop

  ' if not found, set the number of records and reset the cursor
  If (MM_rs.EOF) Then
    If (MM_rsCount < 0) Then
      MM_rsCount = MM_offset
    End If
    If (MM_size < 0 Or MM_size > MM_offset) Then
      MM_size = MM_offset
    End If
    MM_offset = 0

    ' reset the cursor to the beginning
    If (MM_rs.CursorType > 0) Then
      MM_rs.MoveFirst
    Else
      MM_rs.Close
      MM_rs.Open
    End If
  End If

End If
%>
<%
' *** Move To Record: if we dont know the record count, check the display range

If (MM_rsCount = -1) Then

  ' walk to the end of the display range for this page
  MM_index = MM_offset
  While (Not MM_rs.EOF And (MM_size < 0 Or MM_index < MM_offset + MM_size))
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend

  ' if we walked off the end of the recordset, set MM_rsCount and MM_size
  If (MM_rs.EOF) Then
    MM_rsCount = MM_index
    If (MM_size < 0 Or MM_size > MM_rsCount) Then
      MM_size = MM_rsCount
    End If
  End If

  ' if we walked off the end, set the offset based on page size
  If (MM_rs.EOF And Not MM_paramIsDefined) Then
    If (MM_offset > MM_rsCount - MM_size Or MM_offset = -1) Then
```

```
      If ((MM_rsCount Mod MM_size) > 0) Then
        MM_offset = MM_rsCount - (MM_rsCount Mod MM_size)
      Else
        MM_offset = MM_rsCount - MM_size
      End If
    End If
  End If

  ' reset the cursor to the beginning
  If (MM_rs.CursorType > 0) Then
    MM_rs.MoveFirst
  Else
    MM_rs.Requery
  End If

  ' move the cursor to the selected record
  MM_index = 0
  While (Not MM_rs.EOF And MM_index < MM_offset)
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend
End If
%>
<%
' *** Move To Record: update recordset stats

' set the first and last displayed record
rsCustomer_first = MM_offset + 1
rsCustomer_last  = MM_offset + MM_size

If (MM_rsCount <> -1) Then
  If (rsCustomer_first > MM_rsCount) Then
    rsCustomer_first = MM_rsCount
  End If
  If (rsCustomer_last > MM_rsCount) Then
    rsCustomer_last = MM_rsCount
  End If
End If

' set the boolean used by hide region to check if we are on the last record
MM_atTotal = (MM_rsCount <> -1 And MM_offset + MM_size >= MM_rsCount)
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>User Account Update Results</title>
</head>

<body>
<form METHOD="post" name="User Account Update Form" id="User Account Update Form">
  <table width="70%" align="center">
    <tr valign="baseline">
      <td width="41%" align="right" nowrap>Customer_ID:</td>
```

```
          <td width="59%"><input name="Customer_ID" type="text"
value="<%=(rsCustomer.Fields.Item("Customer_ID").Value)%>" size="20"></td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">First Name:</td>
          <td><input name="First_Name" type="text" value="<%=(rsCustomer.Fields.Item("First
Name").Value)%>" size="20">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Middile Initial:</td>
          <td><input name="Middile_Initial" type="text" value="<%=(rsCustomer.Fields.Item("Middile
Initial").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Last Name:</td>
          <td><input name="Last_Name" type="text" value="<%=(rsCustomer.Fields.Item("Last
Name").Value)%>" size="25">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Gender:</td>
          <td><input name="Gender" type="text"
value="<%=(rsCustomer.Fields.Item("Gender").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Rank:</td>
          <td><input name="Rank" type="text" value="<%=(rsCustomer.Fields.Item("Rank").Value)%>"
size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Paygrade:</td>
          <td><input name="Paygrade" type="text"
value="<%=(rsCustomer.Fields.Item("Paygrade").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Branch of Service:</td>
          <td><input name="Branch_of_Service" type="text"
value="<%=(rsCustomer.Fields.Item("Branch of Service").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Name:</td>
          <td><input name="Command_Name" type="text"
value="<%=(rsCustomer.Fields.Item("Command Name").Value)%>" size="50">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_Street:</td>
          <td><input name="Command_Address_Street" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_Street").Value)%>" size="50">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_City:</td>
          <td><input name="Command_Address_City" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_City").Value)%>" size="35">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_State:</td>
          <td><input name="Command_Address_State" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_State").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_Zip:</td>
          <td><input name="Command_Address_Zip" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_Zip").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_Area Code:</td>
          <td><input name="Command_Address_Area_Code" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_Area Code").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_Duty Phone:</td>
          <td><input name="Command_Address_Duty_Phone" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_Duty Phone").Value)%>" size="20">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Address_Street:</td>
          <td><input name="Home_Address_Street" type="text"
value="<%=(rsCustomer.Fields.Item("Home Address_Street").Value)%>" size="50">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Address_City:</td>
          <td><input name="Home_Address_City" type="text"
value="<%=(rsCustomer.Fields.Item("Home Address_City").Value)%>" size="35">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Address_State:</td>
          <td><input name="Home_Address_State" type="text"
value="<%=(rsCustomer.Fields.Item("Home Address_State").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Address_Zip:</td>
          <td><input name="Home_Address_Zip" type="text"
value="<%=(rsCustomer.Fields.Item("Home Address_Zip").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Phone_Area Code:</td>
          <td><input name="Home_Phone_Area_Code" type="text"
value="<%=(rsCustomer.Fields.Item("Home Phone_Area Code").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Phone_Phone Number:</td>
          <td><input name="Home_Phone_Phone_Number" type="text"
value="<%=(rsCustomer.Fields.Item("Home Phone_Phone Number").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Country:</td>
          <td><input name="Country" type="text"
value="<%=(rsCustomer.Fields.Item("Country").Value)%>" size="30">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">User Name:</td>
          <td><input name="User_Name" type="text" value="<%=(rsCustomer.Fields.Item("User
Name").Value)%>" size="30">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Password:</td>
          <td><input name="Password" type="password"
value="<%=(rsCustomer.Fields.Item("Password").Value)%>" size="30">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">GTCC Number:</td>
          <td><input name="CTCC_Number" type="text" value="<%=(rsCustomer.Fields.Item("CTCC
Number").Value)%>" size="25"></td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Email:</td>
          <td><input name="Email" type="text"
value="<%=(rsCustomer.Fields.Item("Email").Value)%>" size="50"></td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right"><div align="left"> </div></td>
          <td><input name="Submit Updates" type="submit" id="Submit Updates" value="Submit
Updates">
          </td>
        </tr>
      </table>
    </form>
    </body>
    </html>
    <%
    rsCustomer.Close()
    Set rsCustomer = Nothing
    %>

    <%@LANGUAGE="VBSCRIPT"%>
    <!--#include file="Connections/BACHELORHOUSING.asp" -->
```

```
<%
Dim rsCustomer__MMColParam
rsCustomer__MMColParam = "1"
If (Request.QueryString("Customer_ID") <> "") Then
  rsCustomer__MMColParam = Request.QueryString("Customer_ID")
End If
%>
<%
Dim rsCustomer
Dim rsCustomer_numRows

Set rsCustomer = Server.CreateObject("ADODB.Recordset")
rsCustomer.ActiveConnection = MM_BACHELORHOUSING_STRING
rsCustomer.Source = "SELECT *  FROM Customer  WHERE Customer_ID = " + Replace(rsCustomer__MMColParam, "'", "''") + ""
rsCustomer.CursorType = 0
rsCustomer.CursorLocation = 2
rsCustomer.LockType = 1
rsCustomer.Open()

rsCustomer_numRows = 0
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<!-- TemplateBeginEditable name="doctitle" -->
<title>Manage_Account_Update</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
body,td,th {
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style5 {font-weight: bold; color: #003300;}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
</head>

<body>
<hr>
<h1><span class="style5">User Account Update </span></h1>
<p>Use the form below to make changes to your user account. </p>
<form action="User_Account_Update_Results.asp" method="get" name="selectCustInfoForm" id="selectCustInfoForm">
  <table width="100%"  border="0" cellspacing="1" cellpadding="1">
    <tr>
      <td colspan="2">Please enter your Customer Identification Number in the space provided below and click the submit to retrieve your account information.</td>
    </tr>
    <tr>
      <td width="32%">Customer Identification Number </td>
      <td width="68%"><input name="Customer_ID" type="text" id="Customer_ID"></td>
    </tr>
```

```
      <tr>
        <td>&nbsp;</td>
        <td><input type="submit" name="Submit" value="Submit"></td>
      </tr>
    </table>
  </form>
  <p>&nbsp;</p>
  <p>&nbsp;</p>
  <p>&nbsp;</p>
    <p>&nbsp;</p>
  <p>&nbsp;</p>
  <p>&nbsp;</p>
  </body>
  </html>
  <%
  rsCustomer.Close()
  Set rsCustomer = Nothing
  %>

  <%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
  <!--#include file="Connections/BACHELORHOUSING.asp" -->
  <%
  Dim rsCustomer__MMColParam
  rsCustomer__MMColParam = "1"
  If (Request.QueryString("Customer_ID") <> "") Then
    rsCustomer__MMColParam = Request.QueryString("Customer_ID")
  End If
  %>
  <%
  Dim rsCustomer
  Dim rsCustomer_numRows

  Set rsCustomer = Server.CreateObject("ADODB.Recordset")
  rsCustomer.ActiveConnection = MM_BACHELORHOUSING_STRING
  rsCustomer.Source = "SELECT *  FROM Customer  WHERE Customer_ID = " +
Replace(rsCustomer__MMColParam, "'", "''") + ""
  rsCustomer.CursorType = 0
  rsCustomer.CursorLocation = 2
  rsCustomer.LockType = 1
  rsCustomer.Open()

  rsCustomer_numRows = 0
  %>
  <%
  '  *** Recordset Stats, Move To Record, and Go To Record: declare stats variables

  Dim rsCustomer_total
  Dim rsCustomer_first
  Dim rsCustomer_last

  ' set the record count
  rsCustomer_total = rsCustomer.RecordCount

  ' set the number of rows displayed on this page
  If (rsCustomer_numRows < 0) Then
    rsCustomer_numRows = rsCustomer_total
```

```
Elseif (rsCustomer_numRows = 0) Then
  rsCustomer_numRows = 1
End If

' set the first and last displayed record
rsCustomer_first = 1
rsCustomer_last  = rsCustomer_first + rsCustomer_numRows - 1

' if we have the correct record count, check the other stats
If (rsCustomer_total <> -1) Then
  If (rsCustomer_first > rsCustomer_total) Then
    rsCustomer_first = rsCustomer_total
  End If
  If (rsCustomer_last > rsCustomer_total) Then
    rsCustomer_last = rsCustomer_total
  End If
  If (rsCustomer_numRows > rsCustomer_total) Then
    rsCustomer_numRows = rsCustomer_total
  End If
End If
%>
<%
Dim MM_paramName
%>
<%
' *** Move To Record and Go To Record: declare variables

Dim MM_rs
Dim MM_rsCount
Dim MM_size
Dim MM_uniqueCol
Dim MM_offset
Dim MM_atTotal
Dim MM_paramIsDefined

Dim MM_param
Dim MM_index

Set MM_rs    = rsCustomer
MM_rsCount   = rsCustomer_total
MM_size      = rsCustomer_numRows
MM_uniqueCol = "Customer_ID"
MM_paramName = "QueryString.Customer_ID"
MM_offset = 0
MM_atTotal = false
MM_paramIsDefined = false
If (MM_paramName <> "") Then
  MM_paramIsDefined = (Request.QueryString(MM_paramName) <> "")
End If
%>
<%
' *** Move To Specific Record: handle detail parameter

If (MM_paramIsDefined And MM_rsCount <> 0) Then

  ' get the value of the parameter
  MM_param = Request.QueryString(MM_paramName)

  ' find the record with the unique column value equal to the parameter value
  MM_offset = 0
  Do While (Not MM_rs.EOF)
    If (CStr(MM_rs.Fields.Item(MM_uniqueCol).Value) = MM_param) Then
      Exit Do
    End If
    MM_offset = MM_offset + 1
    MM_rs.MoveNext
  Loop

  ' if not found, set the number of records and reset the cursor
  If (MM_rs.EOF) Then
    If (MM_rsCount < 0) Then
      MM_rsCount = MM_offset
    End If
    If (MM_size < 0 Or MM_size > MM_offset) Then
      MM_size = MM_offset
    End If
    MM_offset = 0

    ' reset the cursor to the beginning
    If (MM_rs.CursorType > 0) Then
      MM_rs.MoveFirst
    Else
      MM_rs.Close
      MM_rs.Open
    End If
  End If

End If
%>
<%
' *** Move To Record: if we dont know the record count, check the display range

If (MM_rsCount = -1) Then

  ' walk to the end of the display range for this page
  MM_index = MM_offset
  While (Not MM_rs.EOF And (MM_size < 0 Or MM_index < MM_offset + MM_size))
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend

  ' if we walked off the end of the recordset, set MM_rsCount and MM_size
  If (MM_rs.EOF) Then
    MM_rsCount = MM_index
    If (MM_size < 0 Or MM_size > MM_rsCount) Then
      MM_size = MM_rsCount
    End If
  End If

  ' if we walked off the end, set the offset based on page size
  If (MM_rs.EOF And Not MM_paramIsDefined) Then
    If (MM_offset > MM_rsCount - MM_size Or MM_offset = -1) Then
```

```
      If ((MM_rsCount Mod MM_size) > 0) Then
        MM_offset = MM_rsCount - (MM_rsCount Mod MM_size)
      Else
        MM_offset = MM_rsCount - MM_size
      End If
    End If
  End If

  ' reset the cursor to the beginning
  If (MM_rs.CursorType > 0) Then
    MM_rs.MoveFirst
  Else
    MM_rs.Requery
  End If

  ' move the cursor to the selected record
  MM_index = 0
  While (Not MM_rs.EOF And MM_index < MM_offset)
    MM_rs.MoveNext
    MM_index = MM_index + 1
  Wend
End If
%>
<%
' *** Move To Record: update recordset stats

' set the first and last displayed record
rsCustomer_first = MM_offset + 1
rsCustomer_last  = MM_offset + MM_size

If (MM_rsCount <> -1) Then
  If (rsCustomer_first > MM_rsCount) Then
    rsCustomer_first = MM_rsCount
  End If
  If (rsCustomer_last > MM_rsCount) Then
    rsCustomer_last = MM_rsCount
  End If
End If

' set the boolean used by hide region to check if we are on the last record
MM_atTotal = (MM_rsCount <> -1 And MM_offset + MM_size >= MM_rsCount)
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>User Account Update Results</title>
</head>

<body>
<form METHOD="post" name="User Account Update Form" id="User Account Update Form">
  <table width="70%" align="center">
    <tr valign="baseline">
      <td width="41%" align="right" nowrap>Customer_ID:</td>
```

```
          <td width="59%"><input name="Customer_ID" type="text"
value="<%=(rsCustomer.Fields.Item("Customer_ID").Value)%>" size="20"></td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">First Name:</td>
          <td><input name="First_Name" type="text" value="<%=(rsCustomer.Fields.Item("First
Name").Value)%>" size="20">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Middile Initial:</td>
          <td><input name="Middile_Initial" type="text" value="<%=(rsCustomer.Fields.Item("Middile
Initial").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Last Name:</td>
          <td><input name="Last_Name" type="text" value="<%=(rsCustomer.Fields.Item("Last
Name").Value)%>" size="25">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Gender:</td>
          <td><input name="Gender" type="text"
value="<%=(rsCustomer.Fields.Item("Gender").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Rank:</td>
          <td><input name="Rank" type="text" value="<%=(rsCustomer.Fields.Item("Rank").Value)%>"
size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Paygrade:</td>
          <td><input name="Paygrade" type="text"
value="<%=(rsCustomer.Fields.Item("Paygrade").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Branch of Service:</td>
          <td><input name="Branch_of_Service" type="text"
value="<%=(rsCustomer.Fields.Item("Branch of Service").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Name:</td>
          <td><input name="Command_Name" type="text"
value="<%=(rsCustomer.Fields.Item("Command Name").Value)%>" size="50">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_Street:</td>
          <td><input name="Command_Address_Street" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_Street").Value)%>" size="50">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_City:</td>
          <td><input name="Command_Address_City" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_City").Value)%>" size="35">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_State:</td>
          <td><input name="Command_Address_State" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_State").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_Zip:</td>
          <td><input name="Command_Address_Zip" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_Zip").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_Area Code:</td>
          <td><input name="Command_Address_Area_Code" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_Area Code").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Command Address_Duty Phone:</td>
          <td><input name="Command_Address_Duty_Phone" type="text"
value="<%=(rsCustomer.Fields.Item("Command Address_Duty Phone").Value)%>" size="20">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Address_Street:</td>
          <td><input name="Home_Address_Street" type="text"
value="<%=(rsCustomer.Fields.Item("Home Address_Street").Value)%>" size="50">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Address_City:</td>
          <td><input name="Home_Address_City" type="text"
value="<%=(rsCustomer.Fields.Item("Home Address_City").Value)%>" size="35">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Address_State:</td>
          <td><input name="Home_Address_State" type="text"
value="<%=(rsCustomer.Fields.Item("Home Address_State").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">Home Address_Zip:</td>
          <td><input name="Home_Address_Zip" type="text"
value="<%=(rsCustomer.Fields.Item("Home Address_Zip").Value)%>" size="10">
          </td>
        </tr>
        <tr valign="baseline">
```

```
          <td nowrap align="right">Home Phone_Area Code:</td>
          <td><input name="Home_Phone_Area_Code" type="text"
value="<%=(rsCustomer.Fields.Item("Home Phone_Area Code").Value)%>" size="10">
          </td>
         </tr>
         <tr valign="baseline">
          <td nowrap align="right">Home Phone_Phone Number:</td>
          <td><input name="Home_Phone_Phone_Number" type="text"
value="<%=(rsCustomer.Fields.Item("Home Phone_Phone Number").Value)%>" size="10">
          </td>
         </tr>
         <tr valign="baseline">
          <td nowrap align="right">Country:</td>
          <td><input name="Country" type="text"
value="<%=(rsCustomer.Fields.Item("Country").Value)%>" size="30">
          </td>
         </tr>
         <tr valign="baseline">
          <td nowrap align="right">User Name:</td>
          <td><input name="User_Name" type="text" value="<%=(rsCustomer.Fields.Item("User
Name").Value)%>" size="30">
          </td>
         </tr>
         <tr valign="baseline">
          <td nowrap align="right">Password:</td>
          <td><input name="Password" type="password"
value="<%=(rsCustomer.Fields.Item("Password").Value)%>" size="30">
          </td>
         </tr>
         <tr valign="baseline">
          <td nowrap align="right">GTCC Number:</td>
          <td><input name="CTCC_Number" type="text" value="<%=(rsCustomer.Fields.Item("CTCC
Number").Value)%>" size="25"></td>
         </tr>
         <tr valign="baseline">
          <td nowrap align="right">Email:</td>
          <td><input name="Email" type="text"
value="<%=(rsCustomer.Fields.Item("Email").Value)%>" size="50"></td>
         </tr>
         <tr valign="baseline">
          <td nowrap align="right"><div align="left"> </div></td>
          <td><input name="Submit Updates" type="submit" id="Submit Updates" value="Submit
Updates">
          </td>
         </tr>
        </table>
       </form>
       </body>
       </html>
       <%
       rsCustomer.Close()
       Set rsCustomer = Nothing
       %>

       <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
       "http://www.w3.org/TR/html4/loose.dtd">
```

```
<html>
<head>
<!-- TemplateBeginEditable name="doctitle" -->
<title>User_Contact_Us</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
body,td,th {
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style4 {
	color: #003300;
	font-size: 24pt;
}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
</head>

<body>
<hr>
<h1 class="style4">Contact Us </h1>
<br>
</body>
</html>

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<!-- TemplateBeginEditable name="doctitle" -->
<title>Password_Email</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
.style2 {font-size: 6pt;
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style3 {
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-size: 9pt;
	font-weight: bold;
}
body,td,th {
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style4 {color: #003300}
.style5 {color: #000066}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
</head>

<body>
```

```
<hr>
<h1><span class="style4">Email Password </span></h1>
<!-- TemplateBeginEditable name="EditRegion1" -->
<div align="left">
  <p>Your USER ID/PASSWORD has been sent to the email account you provided during at registration. </p>
  <h4 align="right">    <br>
    <span class="style5">Please retrieve information and return to Log In.</span></h4>
</div>
<!-- TemplateEndEditable -->
</body>
</html>

<%@LANGUAGE="VBSCRIPT"%><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<!-- TemplateBeginEditable name="doctitle" -->
<title>User_Forgot_Password</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
.style2 {font-size: 6pt;
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style3 {
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-size: 9pt;
	font-weight: bold;
}
body,td,th {
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style4 {color: #003300}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
<script language="JavaScript" type="text/JavaScript">
<!--
function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_validateForm() { //v4.0
  var i,p,q,nm,test,num,min,max,errors='',args=MM_validateForm.arguments;
  for (i=0; i<(args.length-2); i+=3) { test=args[i+2]; val=MM_findObj(args[i]);
    if (val) { nm=val.name; if ((val=val.value)!="") {
      if (test.indexOf('isEmail')!=-1) { p=val.indexOf('@');
        if (p<1 || p==(val.length-1)) errors+='- '+nm+' must contain an e-mail address.\n';
      } else if (test!='R') { num = parseFloat(val);
```

```
            if (isNaN(val)) errors+='- '+nm+' must contain a number.\n';
            if (test.indexOf('inRange') != -1) { p=test.indexOf(':');
             min=test.substring(8,p); max=test.substring(p+1);
             if (num<min || max<num) errors+='- '+nm+' must contain a number between '+min+' and
'+max+'.\n';
          } } } else if (test.charAt(0) == 'R') errors += '- '+nm+' is required.\n'; }
         } if (errors) alert('The following error(s) occurred:\n'+errors);
         document.MM_returnValue = (errors == '');
        }
        //-->
        </script>
        </head>

        <body>
        <hr>
        <h1><span class="style4">Forgot Password</span></h1>
        <!-- TemplateBeginEditable name="EditRegion1" -->
        <p>Please confirm the following information:</p>
        <form          method="POST"          name="forgotfrm"          id="forgotfrm"
onSubmit="MM_validateForm('fName','','R','lName','','R','ssn2','','RisNum');return
document.MM_returnValue">
        <table width="60%"  border="0" cellspacing="0" cellpadding="0">
          <tr>
           <td width="20%">First Name:</td>
           <td width="80%"><input name="fName" type="text" id="fName"></td>
          </tr>
          <tr>
           <td>Last Name:</td>
           <td><input name="lName" type="text" id="lName"></td>
          </tr>
          <tr>
           <td>SSN:</td>
           <td><input name="ssn" type="text" id="ssn2"></td>
          </tr>
          <tr>
           <td>&nbsp;</td>
           <td><input type="submit" name="Submit" value="Submit">
           <input name="reset" type="reset" id="reset" value="Reset"></td>
          </tr>
         </table>
        </form>
        <p>&nbsp;</p>
        <!-- TemplateEndEditable -->
        </body>
        </html>

        <%@LANGUAGE="VBSCRIPT"%>
        <%
        ' *** Validate requesearch.aspt to log in to thisearch.asp search.aspite.
        MM_LoginAction = Requesearch.aspt.ServerVariablesearch.asp("URL")
        If  Requesearch.aspt.QueryString<>""  Then  MM_LoginAction  =  MM_LoginAction  +  "?"  +
Server.HTMLEncode(Requesearch.aspt.QueryString)
        MM_valUsearch.aspername=CStr(Requesearch.aspt.Form("usearch.asperid"))
        If MM_valUsearch.aspername <> "" Then
         MM_fldUsearch.asperAuthorization="usearch.asper_group"
         MM_redirectLoginSuccesearch.aspsearch.asp="search.asp"
```

```
     MM_redirectLoginFailed="User_Login_Assistance.asp"
     MM_flag="ADODB.Recordset"
     set MM_rsUser = Server.CreateObject(MM_flag)
     MM_rsUser.ActiveConnection = MM_finaldb_STRING
     MM_rsUser.Source = "SELECT user_id, password"
     If MM_fldUserAuthorization <> "" Then MM_rsUser.Source = MM_rsUser.Source & "," &
MM_fldUserAuthorization
     MM_rsUser.Source = MM_rsUser.Source & " FROM registration WHERE user_id='" &
Replace(MM_valUsername,"'","''") &"' AND password='" & Replace(Request.Form("pwd"),"'","''") & "'"
     MM_rsUser.CursorType = 0
     MM_rsUser.CursorLocation = 2
     MM_rsUser.LockType = 3
     MM_rsUser.Open
     If Not MM_rsUser.EOF Or Not MM_rsUser.BOF Then
       ' username and password match - this is a valid user
       Session("MM_Username") = MM_valUsername
       If (MM_fldUserAuthorization <> "") Then
         Session("MM_UserAuthorization") =
CStr(MM_rsUser.Fields.Item(MM_fldUserAuthorization).Value)
       Else
         Session("MM_UserAuthorization") = ""
       End If
       if CStr(Request.QueryString("accessdenied")) <> "" And true Then
         MM_redirectLoginSuccess = Request.QueryString("accessdenied")
       End If
       MM_rsUser.Close
       Response.Redirect(MM_redirectLoginSuccess)
     End If
     MM_rsUser.Close
     Response.Redirect(MM_redirectLoginFailed)
    End If
    %>
    <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
    "http://www.w3.org/TR/html4/loose.dtd">
    <html>
    <head>
    <!-- TemplateBeginEditable name="doctitle" -->
    <title>Login Assistance</title>
    <!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1">
    <style type="text/css">
    <!--
    .style2 {font-size: 6pt;
            font-family: Verdana, Arial, Helvetica, sans-serif;
    }
    .style3 {
            font-family: Verdana, Arial, Helvetica, sans-serif;
            font-size: 9pt;
            font-weight: bold;
    }
    body,td,th {
            font-family: Verdana, Arial, Helvetica, sans-serif;
    }
    .style4 {color: #003300}
    .style5 {font-size: 16px;
            font-family: Verdana, Arial, Helvetica, sans-serif;
```

```
        font-weight: bold;
}
.style6 {color: #000033}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
</head>

<body>
<hr>
<h1>Login Assistance </h1>
<!-- TemplateBeginEditable name="EditRegion1" -->
<p class="style6"><span class="style5">The First Name, Last Name and SSN you provided are not on file.</span></p>
<p class="style6">Please try again or register as a new user at our <a href="User_Registration.asp">Registration Page</a>.</p>
<p class="style6">Thank you.</p>
<!-- TemplateEndEditable -->
</body>
</html>

<%@LANGUAGE="VBSCRIPT"%><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<!-- TemplateBeginEditable name="doctitle" -->
<title>Login_Failed</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
body,td,th {
        font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style4 {color: #003300}
.style8 {font-size: 12pt}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
</head>

<body>
<hr>
<h1><span class="style4">Login Failed</span> </h1>
<p class="style8">Your USER ID and password combination was not recognized. <a href="Login.asp">Please Try Again</a>. </p>

</body>
</html>

<%@LANGUAGE="VBSCRIPT"%><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
```

```
<!-- TemplateBeginEditable name="doctitle" -->
<title>Password Assistance</title>
<!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<style type="text/css">
<!--
.style2 {font-size: 6pt;
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style3 {
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-size: 9pt;
	font-weight: bold;
}
body,td,th {
	font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style4 {color: #003300}
.style5 {font-size: 16px;
	font-family: Verdana, Arial, Helvetica, sans-serif;
	font-weight: bold;
}
.style6 {color: #000066}
.style7 {color: #000033}
-->
</style>
<!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
</head>

<body>
<hr>
<h1><span class="style4">Password Assistance</span> </h1>
<!-- TemplateBeginEditable name="EditRegion1" -->
<p class="style6"><span class="style5">The First Name, Last Name and SSN you provided are not on file.</span></p>
<p class="style7">Please try again or register as a new user at our <a href="User_Registration.asp">Registration Page</a>.</p>
<!-- TemplateEndEditable -->
</body>
</html>

<%@LANGUAGE="VBSCRIPT" CODEPAGE="1252"%>
<!--#include file="Connections/BACHELORHOUSING.asp" -->
<%
' *** Edit Operations: declare variables

Dim MM_editAction
Dim MM_abortEdit
Dim MM_editQuery
Dim MM_editCmd

Dim MM_editConnection
Dim MM_editTable
Dim MM_editRedirectUrl
Dim MM_editColumn
Dim MM_recordId
Dim MM_fieldsStr
Dim MM_columnsStr
Dim MM_fields
Dim MM_columns
Dim MM_typeArray
Dim MM_formVal
Dim MM_delim
Dim MM_altVal
Dim MM_emptyVal
Dim MM_i

MM_editAction = CStr(Request.ServerVariables("SCRIPT_NAME"))
If (Request.QueryString <> "") Then
  MM_editAction = MM_editAction & "?" & Server.HTMLEncode(Request.QueryString)
End If

' boolean to abort record edit
MM_abortEdit = false

' query string to execute
MM_editQuery = ""
%>
<%
' *** Redirect if username exists
MM_flag="MM_insert"
If (CStr(Request(MM_flag)) <> "") Then
  MM_dupKeyRedirect="User_Registration_Failed.asp"
  MM_rsKeyConnection=MM_BACHELORHOUSING_STRING
  MM_dupKeyUsernameValue = CStr(Request.Form("Username"))
  MM_dupKeySQL="SELECT Username FROM Customer WHERE Username='" &
MM_dupKeyUsernameValue & "'"
  MM_adodbRecordset="ADODB.Recordset"
  set MM_rsKey=Server.CreateObject(MM_adodbRecordset)
  MM_rsKey.ActiveConnection=MM_rsKeyConnection
  MM_rsKey.Source=MM_dupKeySQL
  MM_rsKey.CursorType=0
  MM_rsKey.CursorLocation=2
  MM_rsKey.LockType=3
  MM_rsKey.Open
  If Not MM_rsKey.EOF Or Not MM_rsKey.BOF Then
    ' the username was found - can not add the requested username
    MM_qsChar = "?"
    If (InStr(1,MM_dupKeyRedirect,"?") >= 1) Then MM_qsChar = "&"
    MM_dupKeyRedirect = MM_dupKeyRedirect & MM_qsChar & "requsername=" &
MM_dupKeyUsernameValue
    Response.Redirect(MM_dupKeyRedirect)
  End If
  MM_rsKey.Close
End If
%>
<%
' *** Insert Record: set variables

If (CStr(Request("MM_insert")) = "User Registration Form") Then
```

```
          MM_editConnection = MM_BACHELORHOUSING_STRING
          MM_editTable = "Customer"
          MM_editRedirectUrl = "Successful_Account_Registration.asp"
          MM_fieldsStr =
"Customer_ID|value|First_Name|value|Middile_Initial|value|Last_Name|value|Gender|value|Rank|value|P
aygrade|value|Branch_of_Service|value|Command_Name|value|Command_Address_Street|value|Comm
and_Address_City|value|Command_Address_State|value|Command_Address_Zip|value|Command_Addr
ess_Area_Code|value|Command_Address_Duty_Phone|value|Home_Address_Street|value|Home_Addr
ess_City|value|Home_Address_State|value|Home_Address_Zip|value|Home_Phone_Area_Code|value|H
ome_Phone_Phone_Number|value|Country|value|Username|value|Password|value|CTCC_Number|value
|Email|value|userGroup|value"
          MM_columnsStr = "Customer_ID|none,none,NULL|[First Name]|',none,''|[Middile
Initial]|',none,''|[Last Name]|',none,''|Gender|',none,''|Rank|',none,''|Paygrade|',none,''|[Branch of
Service]|',none,''|[Command Name]|',none,''|[Command Address_Street]|',none,''|[Command
Address_City]|',none,''|[Command Address_State]|',none,''|[Command Address_Zip]|',none,''|[Command
Address_Area Code]|',none,''|[Command Address_Duty Phone]|',none,''|[Home
Address_Street]|',none,''|[Home Address_City]|',none,''|[Home Address_State]|',none,''|[Home
Address_Zip]|',none,''|[Home Phone_Area Code]|',none,''|[Home Phone_Phone
Number]|',none,''|Country|',none,''|Username|',none,''|Password|',none,''|[CTCC
Number]|',none,''|Email|',none,''|userGroup|',none,''"

          ' create the MM_fields and MM_columns arrays
          MM_fields = Split(MM_fieldsStr, "|")
          MM_columns = Split(MM_columnsStr, "|")

          ' set the form values
          For MM_i = LBound(MM_fields) To UBound(MM_fields) Step 2
            MM_fields(MM_i+1) = CStr(Request.Form(MM_fields(MM_i)))
          Next

          ' append the query string to the redirect URL
          If (MM_editRedirectUrl <> "" And Request.QueryString <> "") Then
            If (InStr(1, MM_editRedirectUrl, "?", vbTextCompare) = 0 And Request.QueryString <> "") Then
              MM_editRedirectUrl = MM_editRedirectUrl & "?" & Request.QueryString
            Else
              MM_editRedirectUrl = MM_editRedirectUrl & "&" & Request.QueryString
            End If
          End If

        End If
        %>
        <%
        ' *** Insert Record: construct a sql insert statement and execute it

        Dim MM_tableValues
        Dim MM_dbValues

        If (CStr(Request("MM_insert")) <> "") Then

          ' create the sql insert statement
          MM_tableValues = ""
          MM_dbValues = ""
          For MM_i = LBound(MM_fields) To UBound(MM_fields) Step 2
            MM_formVal = MM_fields(MM_i+1)
            MM_typeArray = Split(MM_columns(MM_i+1),",")
            MM_delim = MM_typeArray(0)
```

```
    If (MM_delim = "none") Then MM_delim = ""
    MM_altVal = MM_typeArray(1)
    If (MM_altVal = "none") Then MM_altVal = ""
    MM_emptyVal = MM_typeArray(2)
    If (MM_emptyVal = "none") Then MM_emptyVal = ""
    If (MM_formVal = "") Then
      MM_formVal = MM_emptyVal
    Else
      If (MM_altVal <> "") Then
        MM_formVal = MM_altVal
      ElseIf (MM_delim = "'") Then  ' escape quotes
        MM_formVal = "'" & Replace(MM_formVal,"'","''") & "'"
      Else
        MM_formVal = MM_delim + MM_formVal + MM_delim
      End If
    End If
    If (MM_i <> LBound(MM_fields)) Then
      MM_tableValues = MM_tableValues & ","
      MM_dbValues = MM_dbValues & ","
    End If
    MM_tableValues = MM_tableValues & MM_columns(MM_i)
    MM_dbValues = MM_dbValues & MM_formVal
  Next
  MM_editQuery = "insert into " & MM_editTable & " (" & MM_tableValues & ") values (" & MM_dbValues & ")"

  If (Not MM_abortEdit) Then
    ' execute the insert
    Set MM_editCmd = Server.CreateObject("ADODB.Command")
    MM_editCmd.ActiveConnection = MM_editConnection
    MM_editCmd.CommandText = MM_editQuery
    MM_editCmd.Execute
    MM_editCmd.ActiveConnection.Close

    If (MM_editRedirectUrl <> "") Then
      Response.Redirect(MM_editRedirectUrl)
    End If
  End If

End If
%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<title>User_Registration</title>
<style type="text/css">
<!--
.style4 {color: #003300}
body,td,th {
        font-family: Verdana, Arial, Helvetica, sans-serif;
}
-->
</style>
<script language="JavaScript" type="text/JavaScript">
```

```
<!--
function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_validateForm() { //v4.0
  var i,p,q,nm,test,num,min,max,errors='',args=MM_validateForm.arguments;
  for (i=0; i<(args.length-2); i+=3) { test=args[i+2]; val=MM_findObj(args[i]);
    if (val) { nm=val.name; if ((val=val.value)!="") {
      if (test.indexOf('isEmail')!=-1) { p=val.indexOf('@');
        if (p<1 || p==(val.length-1)) errors+='- '+nm+' must contain an e-mail address.\n';
      } else if (test!='R') { num = parseFloat(val);
        if (isNaN(val)) errors+='- '+nm+' must contain a number.\n';
        if (test.indexOf('inRange') != -1) { p=test.indexOf(':');
          min=test.substring(8,p); max=test.substring(p+1);
          if (num<min || max<num) errors+='- '+nm+' must contain a number between '+min+' and
'+max+'.\n';
    } } } else if (test.charAt(0) == 'R') errors += '- '+nm+' is required.\n'; }
  } if (errors) alert('The following error(s) occurred:\n'+errors);
  document.MM_returnValue = (errors == '');
}
//-->
</script>
</head>

<body>
<hr>
<h1 class="style4">User Registration</h1>
<form ACTION="<%=MM_editAction%>" METHOD="POST" name="User Registration Form"
id="User Registration Form">
  <table width="70%" align="center">
    <tr valign="baseline">
      <td width="41%" align="right" nowrap>Customer_ID:</td>
      <td width="59%"><input type="text" name="Customer_ID" value="" size="20"></td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">First Name:</td>
      <td><input type="text" name="First_Name" value="" size="20">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Middile Initial:</td>
      <td><input type="text" name="Middile_Initial" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Last Name:</td>
      <td><input type="text" name="Last_Name" value="" size="25">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Gender:</td>
      <td><input type="text" name="Gender" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Rank:</td>
      <td><input type="text" name="Rank" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Paygrade:</td>
      <td><input type="text" name="Paygrade" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Branch of Service:</td>
      <td><input type="text" name="Branch_of_Service" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Command Name:</td>
      <td><input type="text" name="Command_Name" value="" size="50">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Command Address_Street:</td>
      <td><input type="text" name="Command_Address_Street" value="" size="50">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Command Address_City:</td>
      <td><input type="text" name="Command_Address_City" value="" size="35">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Command Address_State:</td>
      <td><input type="text" name="Command_Address_State" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Command Address_Zip:</td>
      <td><input type="text" name="Command_Address_Zip" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Command Address_Area Code:</td>
      <td><input type="text" name="Command_Address_Area_Code" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Command Address_Duty Phone:</td>
      <td><input type="text" name="Command_Address_Duty_Phone" value="" size="20">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Home Address_Street:</td>
      <td><input type="text" name="Home_Address_Street" value="" size="50">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Home Address_City:</td>
      <td><input type="text" name="Home_Address_City" value="" size="35">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Home Address_State:</td>
      <td><input type="text" name="Home_Address_State" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Home Address_Zip:</td>
      <td><input type="text" name="Home_Address_Zip" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Home Phone_Area Code:</td>
      <td><input type="text" name="Home_Phone_Area_Code" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Home Phone_Phone Number:</td>
      <td><input type="text" name="Home_Phone_Phone_Number" value="" size="10">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Country:</td>
      <td><input type="text" name="Country" value="" size="30">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Username:</td>
      <td><input name="Username" type="text" id="Username" value="" size="30">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Password:</td>
      <td><input type="password" name="Password" value="" size="30">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">GTCC Number:</td>
      <td><input type="text" name="CTCC_Number" value="" size="25">
      </td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right">Email:</td>
      <td><input type="text" name="Email" value="" size="50"></td>
    </tr>
    <tr valign="baseline">
      <td nowrap align="right"><div align="left">
        <input name="userGroup" type="hidden" id="userGroup" value="visitor">
      </div></td>
```

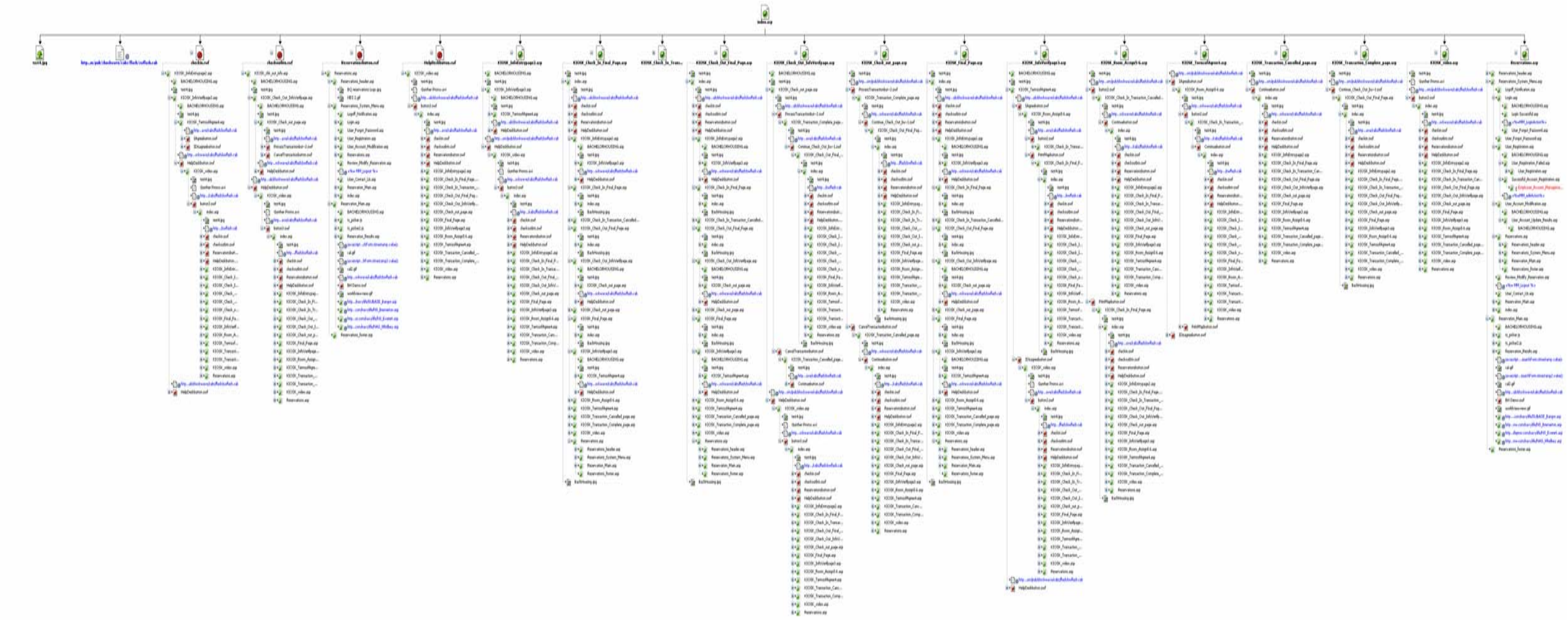
```
          <td><input name="Submit Registration" type="submit" id="Submit Registration"
onClick="MM_validateForm('Customer_ID','','RisNum','First_Name','','R','Last_Name','','R','Gender','','R','R
ank','','R','Paygrade','','R','Branch_of_Service','','R','Command_Name','','R','Command_Address_Street','','
R','Command_Address_City','','R','Command_Address_State','','R','Command_Address_Zip','','R','Comma
nd_Address_Area_Code','','R','Command_Address_Duty_Phone','','R','Home_Address_Street','','R','Home
_Address_City','','R','Home_Address_State','','R','Home_Address_Zip','','R','Home_Phone_Area_Code','','
R','Home_Phone_Phone_Number','','R','Country','','R','User_Name','','R','Email','','RisEmail','Password','','
R');return document.MM_returnValue" value="Submit Registration">
          </td>
        </tr>
        <tr valign="baseline">
          <td nowrap align="right">&nbsp;</td>
          <td>&nbsp;</td>
        </tr>
      </table>




        <input type="hidden" name="MM_insert" value="User Registration Form">
      </form>
      <p>&nbsp;</p>
      <p>&nbsp;</p>
      </body>
      </html>

      <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
      "http://www.w3.org/TR/html4/loose.dtd">
      <html>
      <head>
      <!-- TemplateBeginEditable name="doctitle" -->
      <title>Registration_Failed</title>
      <!-- TemplateEndEditable --><meta http-equiv="Content-Type" content="text/html; charset=iso-
8859-1">
      <style type="text/css">
      <!--
      body,td,th {
              font-family: Verdana, Arial, Helvetica, sans-serif;
      }
      .style4 {color: #003300}
      .style11 {font-size: 16pt}
      -->
      </style>
      <!-- TemplateBeginEditable name="head" --><!-- TemplateEndEditable -->
      </head>

      <body>
      <hr>

      <h1><span class="style4">  Registration Failed</span> <br>
        <br>
        <span class="style11">The USER ID you have chosen has already been taken. Please return to
the <a href="User_Registration.asp">Registration Page</a> and select a different USER ID. Thank you.
</span></h1>
      <h1>&nbsp;</h1>
```

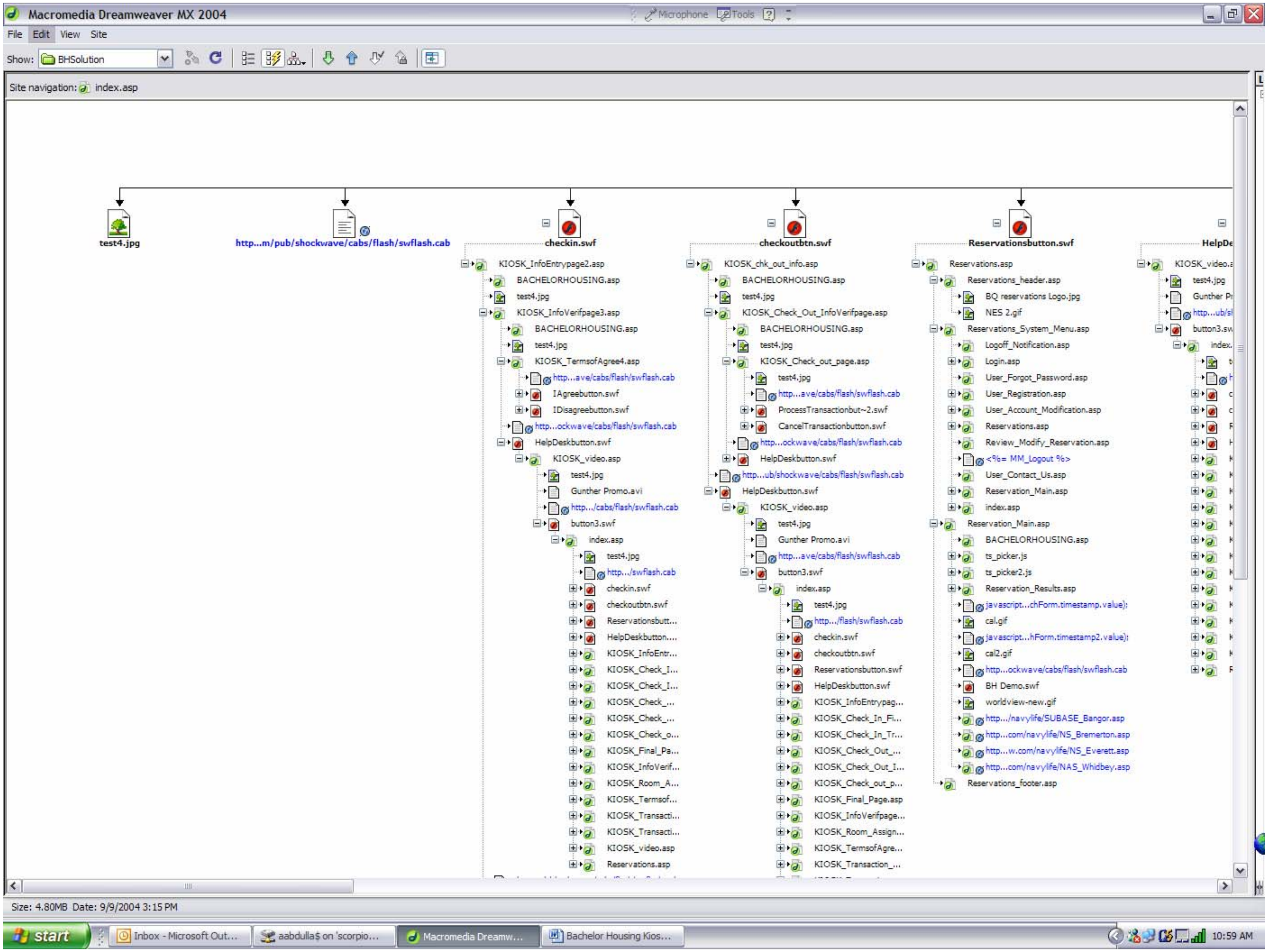
```
</body>
</html>
```

APPENDIX E. BACHELOR HOUSING KIOSK AND WEB RESERVATIONS SYSTEM WEBSITE NAVIGATION

Appendix E contains actual navigation screenshots of the BH Solution in the Dreamweaver MX 2004 development environment. It is provided to illustrate the site navigation flow and the level of detailed interaction between the existing web pages.

Bachelor Housing Kiosk and Web Reservations System Website Navigation




Macromedia Dreamweaver MX 2004
Microphone
Tools
File
Edit
View
Site
Show:
BHSolution
Site navigation:
index.asp
test4.jpg
http...m/pub/shockwave/cabs/flash/swflash.cab
checkin.swf
checkoutbtn.swf
Reservationsbutton.swf
HelpDe
KIOSK_InfoEntrypage2.asp
BACHELORHOUSING.asp
test4.jpg
KIOSK_InfoVerifpage3.asp
BACHELORHOUSING.asp
test4.jpg
KIOSK_TermsofAgree4.asp
http...ave/cabs/flash/swflash.cab
IAgreebutton.swf
IDisagreebutton.swf
http...ockwave/cabs/flash/swflash.cab
HelpDeskbutton.swf
KIOSK_video.asp
test4.jpg
Gunther Promo.avi
http.../cabs/flash/swflash.cab
button3.swf
index.asp
test4.jpg
http.../swflash.cab
checkin.swf
checkoutbtn.swf
Reservationsbutt...
HelpDeskbutton....
KIOSK_InfoEntr...
KIOSK_Check_I...
KIOSK_Check_I...
KIOSK_Check_...
KIOSK_Check_...
KIOSK_Check_o...
KIOSK_Final_Pa...
KIOSK_InfoVerif...
KIOSK_Room_A...
KIOSK_Termsof...
KIOSK_Transacti...
KIOSK_Transacti...
KIOSK_video.asp
Reservations.asp
KIOSK_chk_out_info.asp
BACHELORHOUSING.asp
test4.jpg
KIOSK_Check_Out_InfoVerifpage.asp
BACHELORHOUSING.asp
test4.jpg
KIOSK_Check_out_page.asp
test4.jpg
http...ave/cabs/flash/swflash.cab
ProcessTransactionbut~2.swf
CancelTransactionbutton.swf
http...ockwave/cabs/flash/swflash.cab
HelpDeskbutton.swf
http...ub/shockwave/cabs/flash/swflash.cab
HelpDeskbutton.swf
KIOSK_video.asp
test4.jpg
Gunther Promo.avi
http...ave/cabs/flash/swflash.cab
button3.swf
index.asp
test4.jpg
http.../flash/swflash.cab
checkin.swf
checkoutbtn.swf
Reservationsbutton.swf
HelpDeskbutton.swf
KIOSK_InfoEntrypag...
KIOSK_Check_In_Fi...
KIOSK_Check_In_Tr...
KIOSK_Check_Out_...
KIOSK_Check_Out_I...
KIOSK_Check_out_p...
KIOSK_Final_Page.asp
KIOSK_InfoVerifpage...
KIOSK_Room_Assign...
KIOSK_TermsofAgre...
KIOSK_Transaction_...
Reservations.asp
Reservations_header.asp
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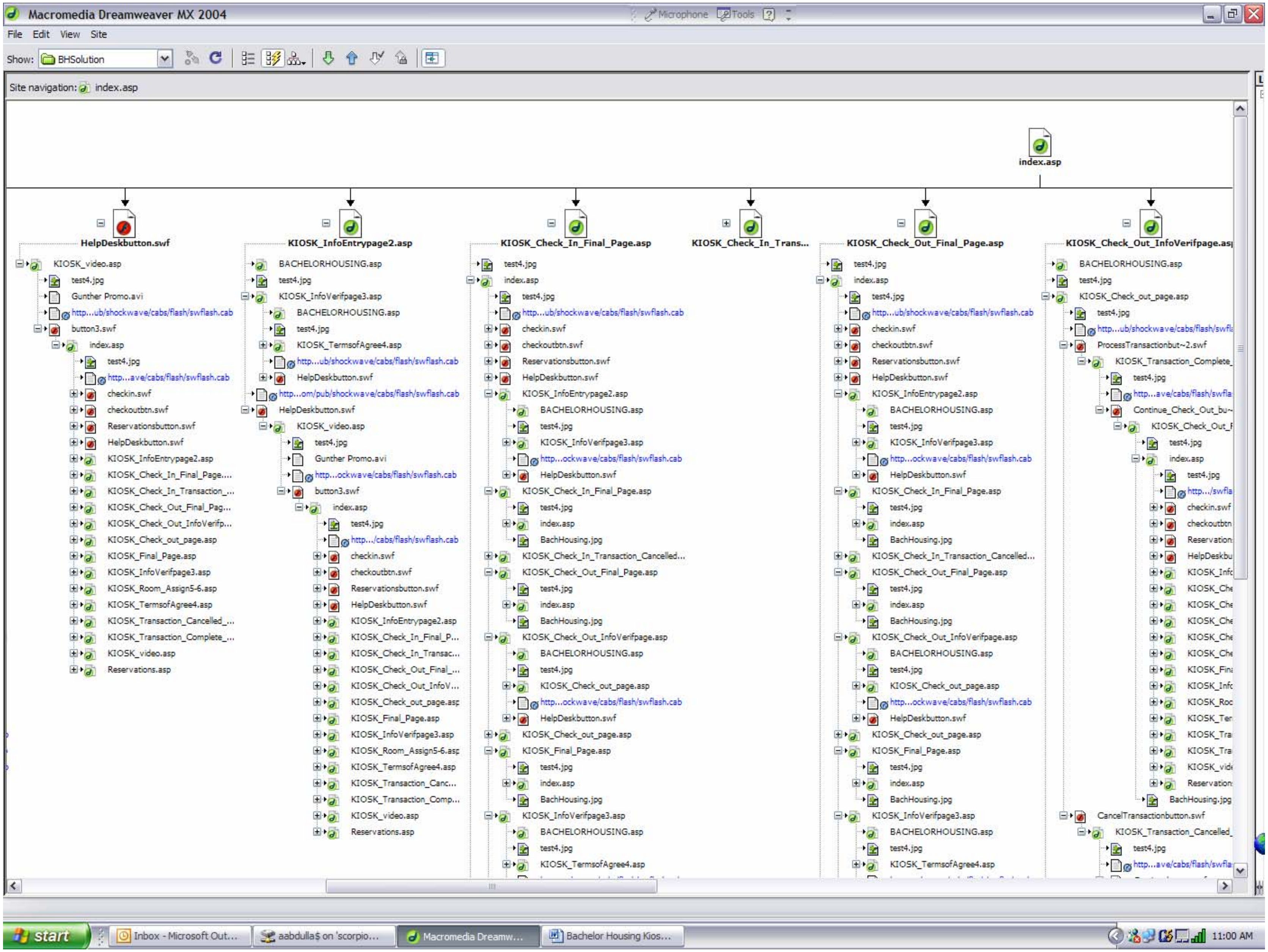
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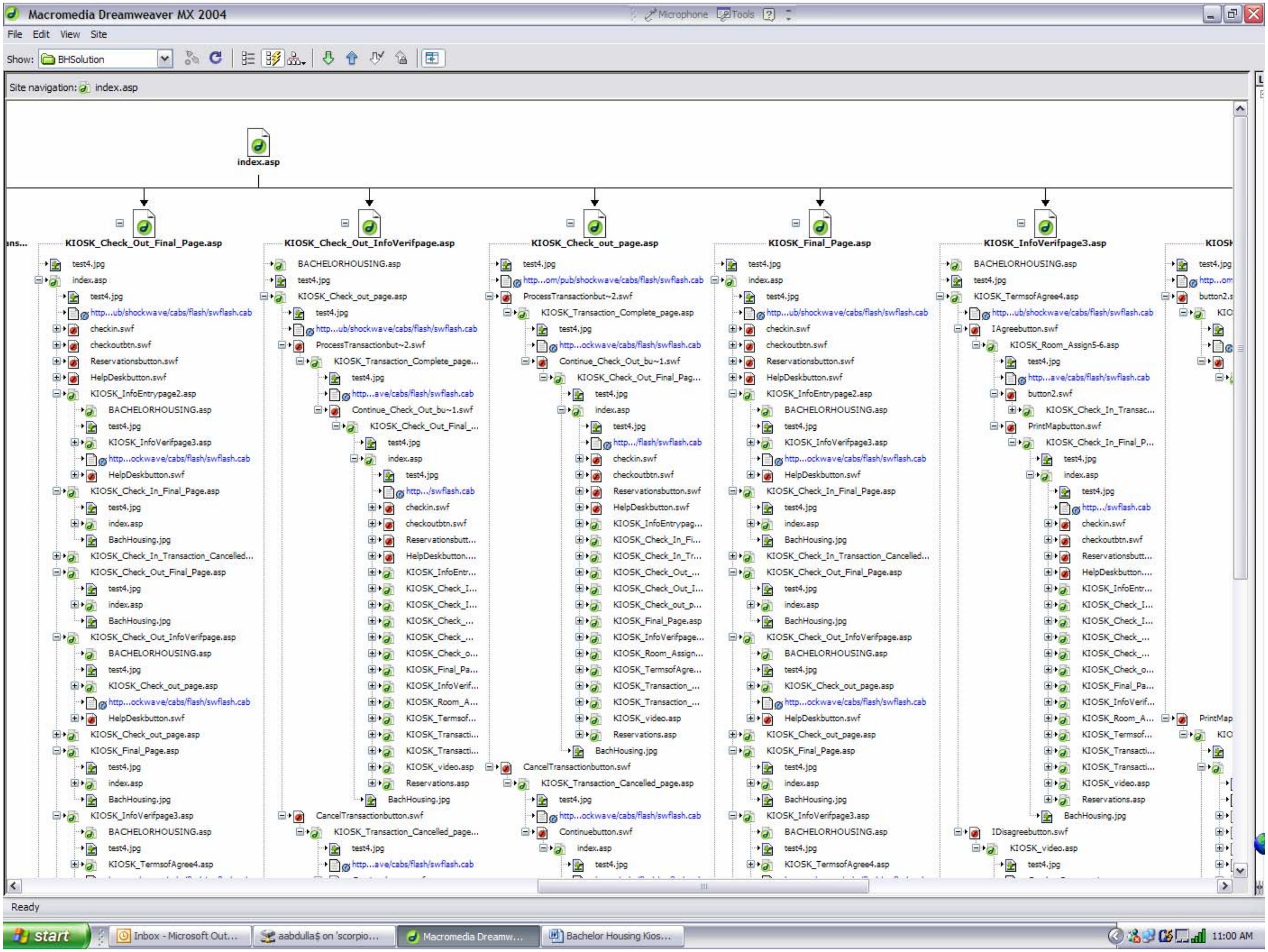
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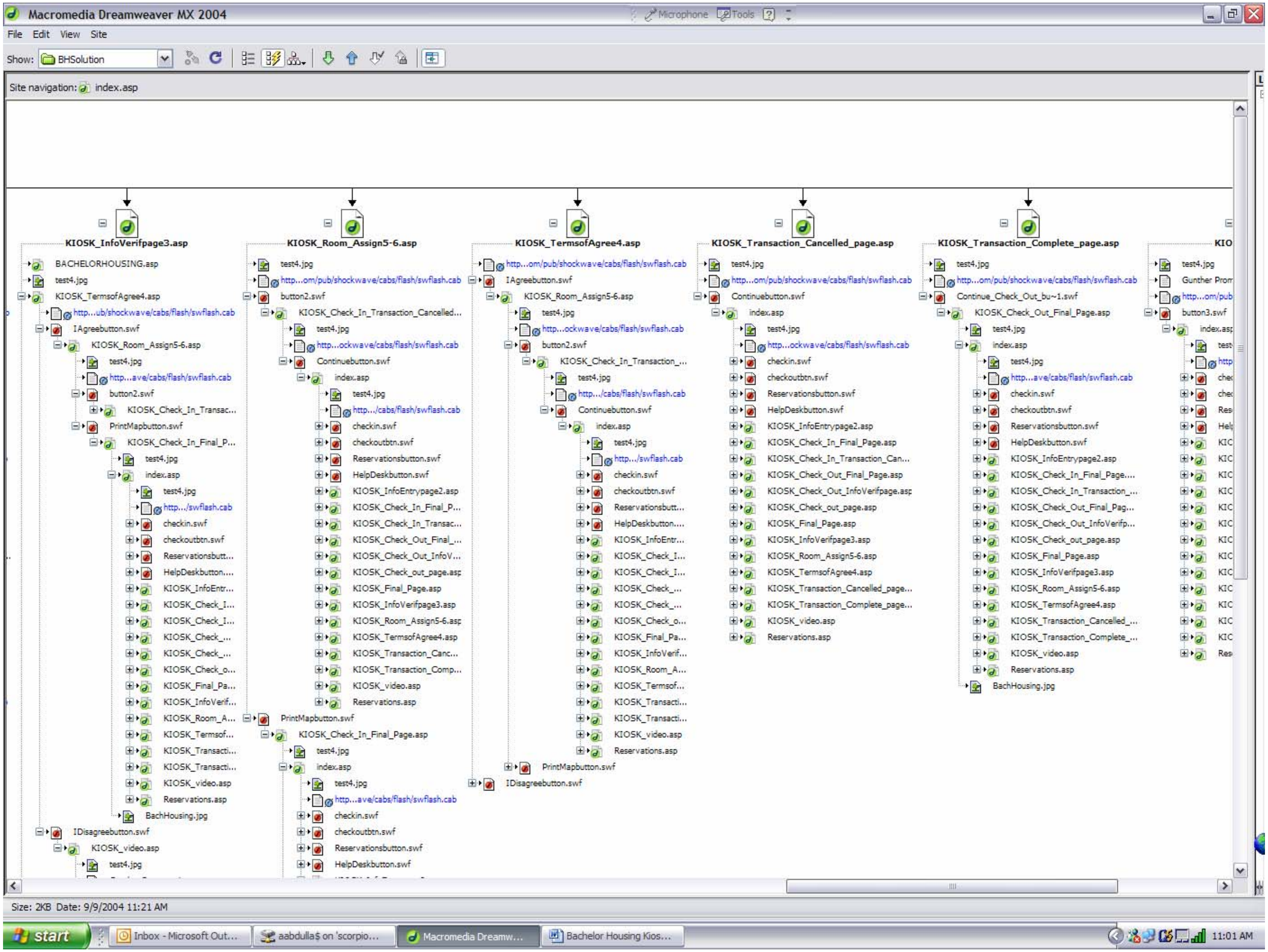

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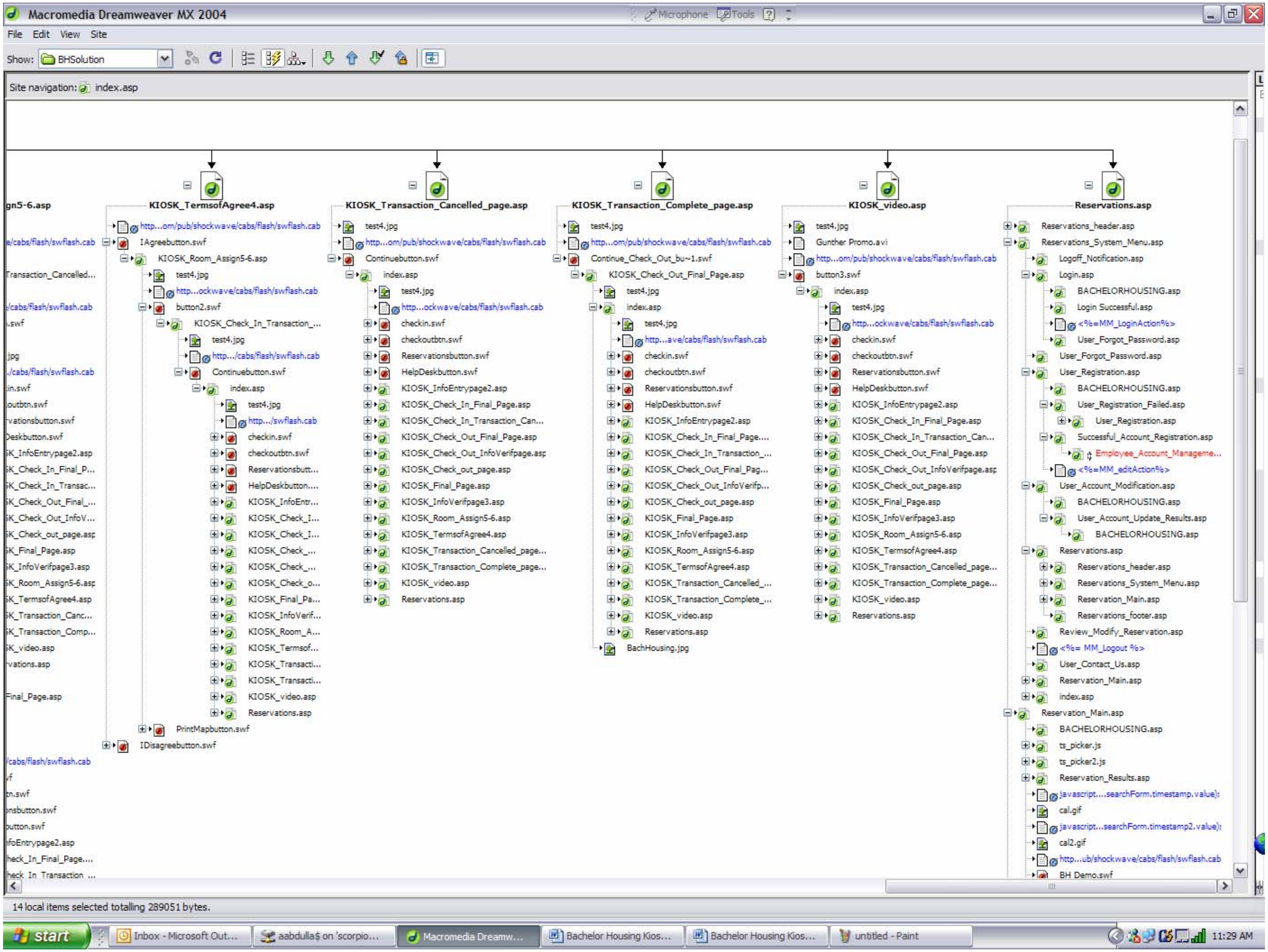

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APPENDIX F. BACHELOR HOUSING E-BUSINESS TRANSFORMATION SOLUTION FINANCIAL EXPENDITURE REPORT

Appendix F contains the breakdown of the financial expenses incurred in the development effort as it applies to the “Proof of Concept” and the analysis work conducted in the Navy Region Northwest.

Labor Expense:

Category:	Rate:	Duration:	Total:
Faculty Labor/Program Director			$22,035.87
Staff Labor			$6,134.93
Contracted Services			$4,000.
		Sub-Total:	**$32,170.80**
*(2) FTE Program Analyst	$1K/day	3 months	($120,000.00)
*(1) FTE Programmer/Developer	$1K/day	3 months	($60,000.00)

* These amounts reflect the average cost of the analysis and development work that was completed by NPS students if it had been contracted out to industry professionals. This information is provided to include the "value-added" project cost savings of the research initiative.

Travel Expense:

		Total:
Non-Labor Travel	**Sub-Total:**	**$8262.22**

Equipment Expense:

Description:	Qty:	Cost per Unit:	Total:
17" Planar Touch Screen Monitor	1	$685.00	$685
Dell Latitude D600 Laptop	3	$1,776.23	$5,328.68
Logitec Webcams	3	$85.00	$255
Macromedia Dreamweaver MX 2004	1	$355.59	$355.59
		Sub-Total:	**$6,624.27**
		Total:	**$47,057.29**

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